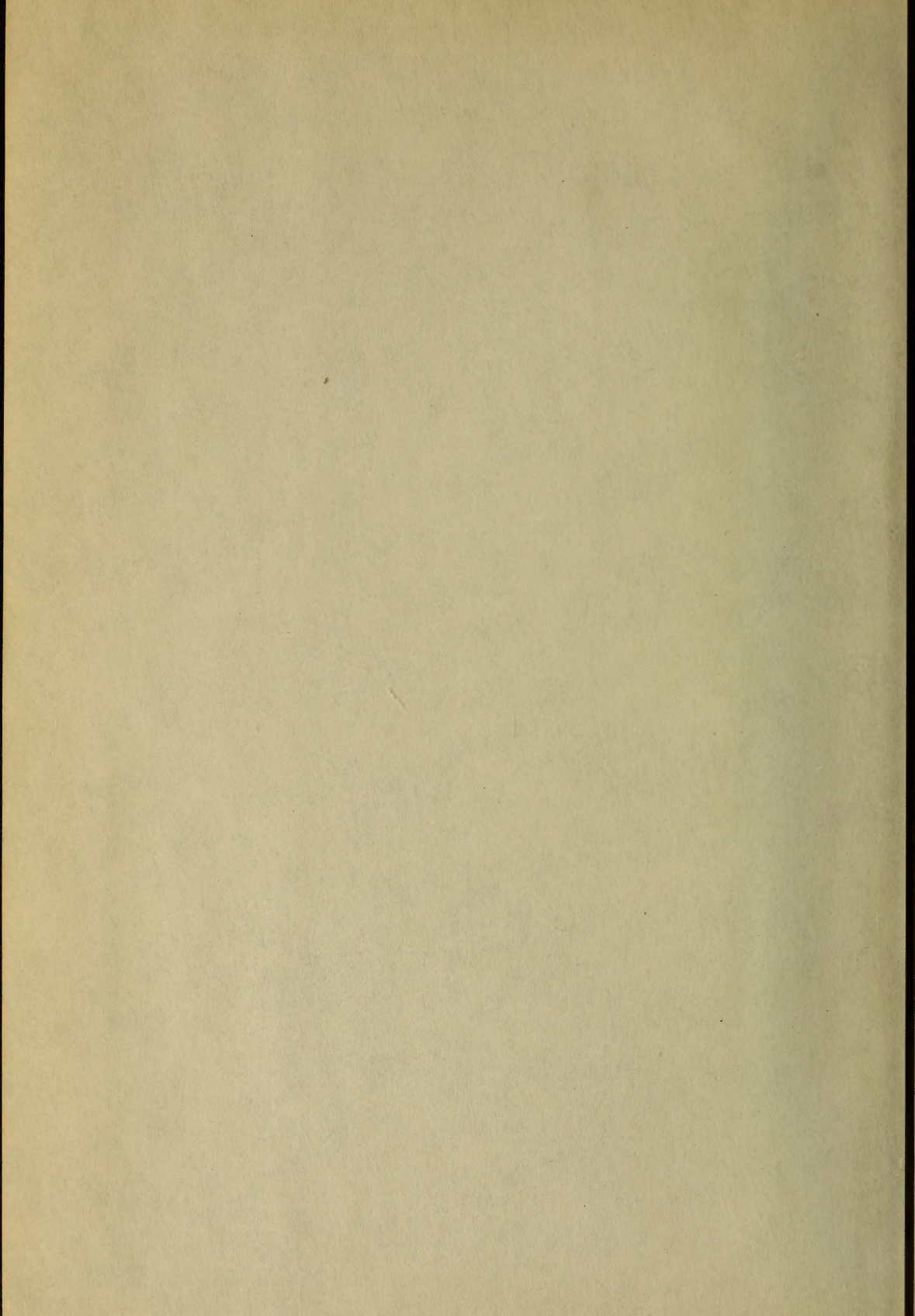
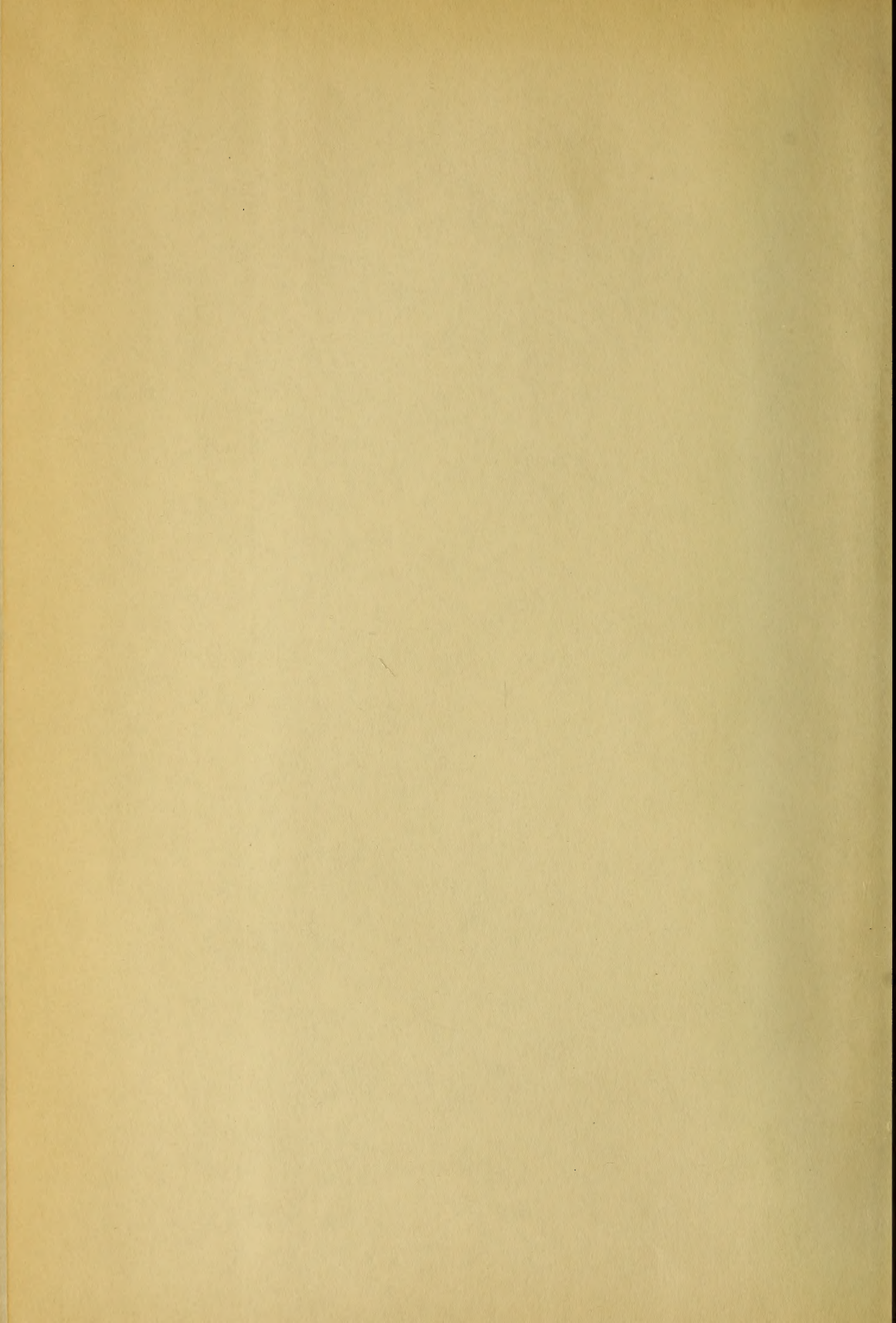


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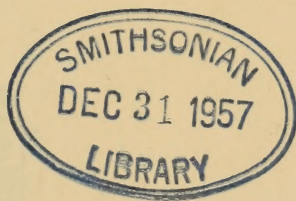


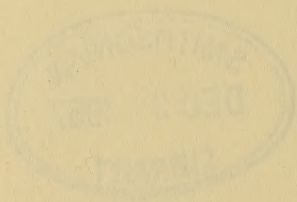


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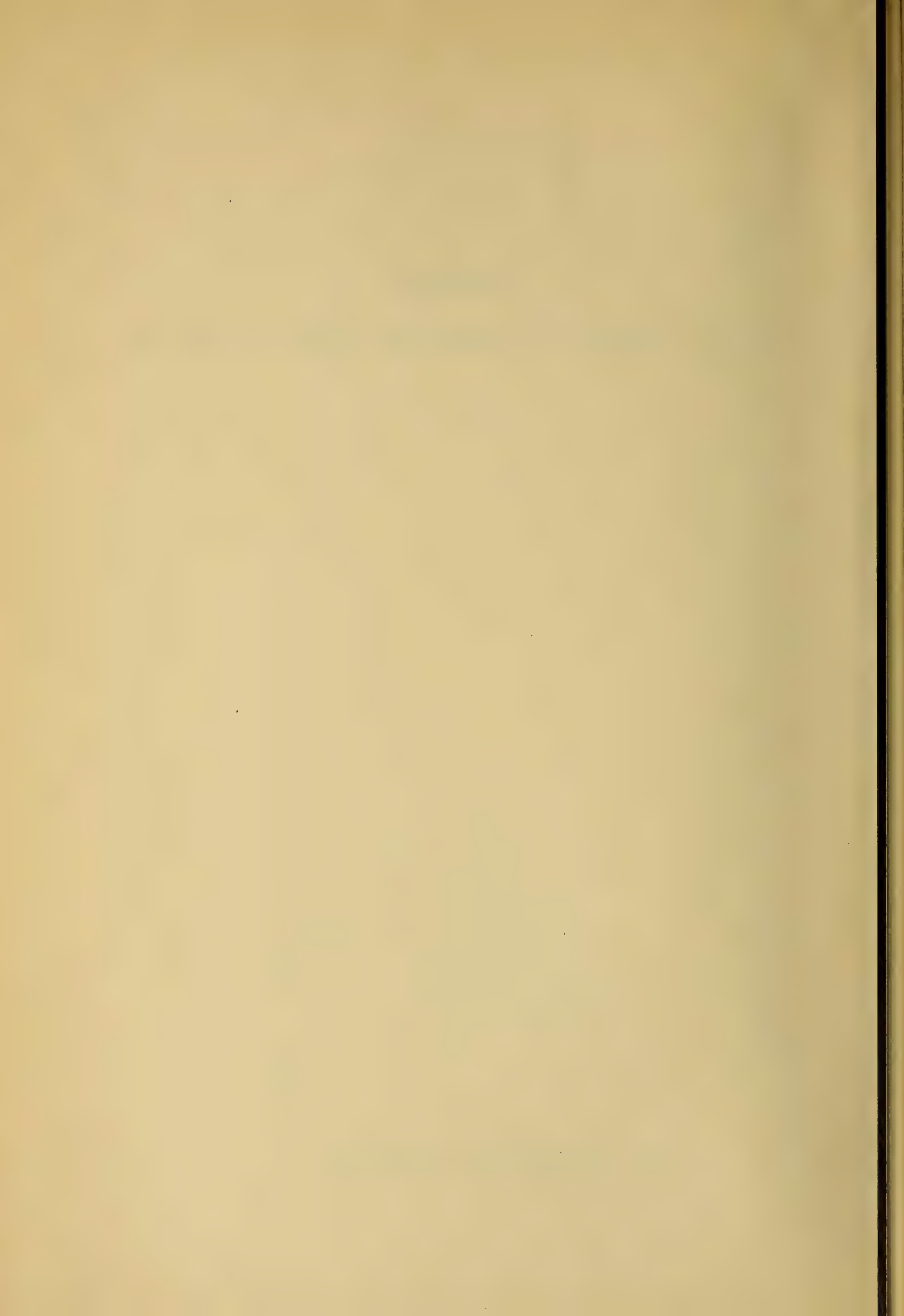


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A. J. HESSE. A Revision of the Bombyliidae (Diptera) of Southern Africa
Parts II and III.



Includes the rest of the BOMBYLIIDAE HOMOEOPHTHALMAE continued from Part I (vol. xxxiv) published in 1938 and also the rest of the Bombyliidae (BOMBYLIIDAE TOMOPHTHALMAE).

It also contains a key to all the subfamilies and all the known South African genera dealt with in both this and the preceding volume.

In this volume 34 genera are described of which 10 are new. Comprehensive descriptions and keys to all the known South African species of these genera are given. Altogether 439 species are described of which 270 are new.

A short appendix to the preceding Part I (vol. xxxiv), containing descriptions of two new genera, synonymical notes and corrections, is included.

At the end is a complete Index to all the genera, species and varieties dealt with in both this and the preceding volume.

In alphabetical order the new genera described in this volume are:

ATRICHOCHIRA
CONOMYZA
CORYPROSOPA
DOLIOPTERYX
EPACMOIDES
MARLEYIMYIA
PROROSTOMA
PTERAULACODES
XENOPROSOPA
XERAMOEBIA



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PART I, containing:—

A Revision of the Bombyliidae (Diptera) of Southern Africa, PART II.
By A. J. HESSE, B.SC., PH.D., F.R.E.S., F.R.S.S.AFR., Department of
Entomology, South African Museum, Cape Town.



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A Revision of the Bombyliidae (Diptera) of Southern Africa. Parts II and III.
By A. J. HESSE, B.Sc., PH.D., F.R.E.S., F.R.S.S.AFR., Department of
Entomology, South African Museum.

THESE two parts of my revision of the Bombyliidae of Southern Africa constitute a continuation of Part I which was published in Vol. XXXIV of these annals. The work has taken me far longer to accomplish than I anticipated, but, owing to many other routine duties in connection with the Department of Entomology and the Museum in general, my undivided attention could not be given to this revision alone. For long periods, especially during the years of the last war, very little time was devoted to this undertaking.

In these two parts I have departed somewhat from the method of presentation adopted in Part I. In the dichotomous keys to the genera and species the opposing and contrasting couplets have now been placed in juxtaposition, a procedure which will now render the identification of the species more easy. The substitution of the terms 'vestiture' and 'middle cross vein' for 'pubescence' and 'discal cross vein' respectively is less confusing and less subject to erroneous interpretation. On the other hand the more important references to the literature dealing with the respective genera and species have again been listed under each genus and species, thus rendering the compilation of a long list of literary references at the end of the revision, as was at first contemplated in Part I, unnecessary. The non-technical and purely convenient terminology which I have used for the hypopygial structures of the males has also been retained, pending some future clarification of the correct homology of such structures in Diptera in general.

As these two parts are already too bulky, the contemplated appendix to Part I, in which it was proposed to describe the many new forms which have accumulated since 1938, has not been added. Most of this material will therefore have to be dealt with separately in future parts of these annals or elsewhere. Only the two new genera recorded in the general key to the genera are described at the end of Part III.

ACKNOWLEDGEMENTS

My indebtedness and obligation are due to all those institutions already mentioned in the introduction to Part I which have kindly placed their material

at my disposal, and in addition also to Drs. Per Brinck and Rudebeck of the University of Lund, Dr. M. C. Ferreira of the Museu Dr. Alvaro de Castro at Lourenço Marques, Mr. C. Jacot-Guillarmod of Basutoland, and Dr. F. Zumpt of the Medical Institute in Johannesburg, who have submitted material in the interim. I am especially indebted to Mr. C. Thorne and Mr. H. Zinn, technical assistants on the staff of the South African Museum, who have collected most of the Bombyliid material acquired by the Museum during the last quarter of a century.

My special thanks are due to the Council for Scientific and Industrial Research of South Africa for the award of a grant towards the costs of printing these two parts.

GENERAL AND SYSTEMATIC

These second and third parts of my revision deal with all the genera and species of Southern Africa which have been included in the Second Division (*Bombyliidae Tomophthalmæ*) by Bezzi (pp. 136-379, *The Bombyliidae of the Ethiopian Region*, 1924). The genera *Nomalonia* Rondani, *Henica* Macquart, *Peringueyimyia* Bigot and the genera of the *Tomomyzinae*, which Bezzi included in his First Division (*Bombyliidae Homoeophthalmæ*), have however been referred to the Second Division with which these two parts deal. As was stated in Part I (vol. XXXIV), the above-mentioned genera, though agreeing with the genera of the First Division in many respects, agree with those of the Second Division and differ from all those enumerated in Part I, in having the occipital region behind the eyes distinctly bilobate and the hind part of the head more distinctly concave or excavate. In some other respects they appear to constitute links between the two divisions.

The rest of the genera, belonging to Bezzi's Second Division, show a certain amount of uniformity or homogeneity in salient features, which enable us to separate them very easily from genera of the First Division. Such distinctive characters as a bilobate occiput, large and easily detachable head which is deeply excavate behind, bisected eyes, the presence of a characteristic collar-like ring of hairs or bristly hairs across the front part of the thorax, the sometimes distinctive, mottled or spotted wing-patterns, and an often peculiar type of wing-venation, give them a distinct facies of their own.

An introductory key to all the known Bombyliid-genera of Southern Africa, given below, will enable the student of this Dipterous family to separate the various genera belonging to the two great Divisions.

Key to the Divisions, Subfamilies, Groups and all the known Genera of the South African Bombyliidae

1. (a) Occipital region behind eyes not distinctly bilobate, usually flattened or only slightly concavely hollowed out, or merely with a slight or shallow, central, groove-like depression or shallow furrow down the occiput posterior to ocellar tubercle, never with a very deep, slit-like channel or sulcation leading into a deep and conspicuous concavity; hind margin of eyes entire, rarely sinuate or emarginate and, if so, occiput

is not bilobate, and always without a bisecting line; common base of second and third veins in wings usually very much shorter or very short, rarely longish and, if long, hind margin of eyes not indented; second vein usually originating at an acute angle from third vein; vein between submarginal cells without a basally directed appendix or stump at its base. . . . 2 (Division I) (as Part I in *Ann. S. Afr. Mus.*, xxxiv, 1938)

- (b) Occipital region behind eyes distinctly bilobate, often strongly so, with a distinct deep and often long, central, slit-like channel or sulcation, often beginning in a foveate depression, leading into a deep and conspicuous concavity in head behind; hind margin of eyes in most genera distinctly indented or subangularly or angularly emarginate and, if not, occiput at least is bilobate, more often with a distinct or faint, abbreviated, bisecting line extending forwards from indentation and, if not present, occiput at least is bilobate; common base of second and third veins usually longer or very much longer, rarely shortish and, if so, hind margin of eyes distinctly indented; second vein more often originating at right angles or very nearly so from third vein; vein between submarginal cells often with a basally directed stump at its base and, if not, other characters do not differ.

45 (Division II) (as Parts II and III in this volume)

2. (a) Thorax without a distinctly visible, broadish and well-marked-off pronotal or prothoracic part, forming a conspicuous ring or collar, its mesonotal part merely abutting on occiput and hiding any faint or narrow indication of such a prothoracic part and the hidden latter part always without bristles; scutellum usually more or at least slightly convex, not markedly flattened; femora, especially hind ones, not markedly thickened or incrassate or spindle-shaped, and without dense and markedly long spines; tibiae, especially hind ones, without elongated, flattened and fluted scales; antennae without any or with only feeble, scarcely visible, and non-bushy scaling on some of the joints. 3

- (b) Thorax with a distinctly visible, broad, well-developed, conspicuous and well-marked-off pronotal or prothoracic part, forming a conspicuous ring or collar in front of mesonotal part, the anterior part of which and the pronotal part as well being provided with stoutish and conspicuous bristles; scutellum markedly flattened; femora, especially hind ones, tending to be markedly thickened or incrassate medially and spindle-shaped and with dense, markedly long spines; tibiae, especially hind ones, with elongated, flattened and fluted scales; antennae with very dense, conspicuous and bushy scaling on all the joints.

Toxophorinae (*Toxophora* Meig., pp. 1028 and 1029, Part I, vol. XXXIV)

3. (a) Body not markedly elongate, not simulating or mimicking that of Aculeate Hymenoptera or Vespidae; metasternal region normal, not strongly or broadly developed; abdomen not markedly elongate and petiolate, not Sphegid- or Vespid-like; legs and even hind ones not abnormally long; front femora without any callus-like area. . . . 4

- (b) Body markedly elongate, simulating or mimicking that of Aculeate-Hymenoptera or some Vespidae; metasternal region strongly and broadly developed; abdomen markedly elongate and with a slender stalk or petiole, ending in a club as in Sphegids and some Vespids; legs, especially hind ones, abnormally elongate and like those of Sphegids or Vespids; front femora with an elliptical, callus-like and microscopically sculptured area. *Systropinae* (*Systropus* Wied., pp. 990 and 991, Part I, vol. XXXIV)

4. (a) Wings usually with a normal number of cells and with two or three, not less than two, submarginal cells; antennae usually triarticulate, joint 3 however sometimes ending in small terminal joints or a style, rarely obviously quadriarticulate and, if so, at least two submarginal cells present; occiput usually flattened, slightly hollowed or only slightly convex; eyes not tending to be shifted forwards; vestiture usually dense, markedly dense, rarely sparse and short; tibiae usually with distinct rows of spicules and well-developed or conspicuous apical spurs even if only short; basal joint of posterior tarsi without a basal process or hook below in ♂♂; last sternite in ♂♂ with the upper apical angles rounded or only subangularly prominent or only slightly produced; moderately large or large, rarely very small forms. 5

- (b) Wings with the cells much reduced in number, with only one submarginal cell present, the position of the second submarginal cell being occupied by the first posterior cell,

sometimes even without a marginal or discoidal cell, and sometimes even with only a single basal cell; antennae distinctly and obviously quadriarticulate, joint 4 distinctly evident or well developed; occiput markedly, sometimes prominently and convexly, developed; eyes shifted or tending to be shifted far forwards; vestiture almost entirely absent or very much reduced, greater part of body being almost bare; tibiae with only fine pubescence, no distinct spicules being present and with the apical spurs much reduced, inconspicuous or vestigial; basal joint of posterior tarsi in ♂♂ sometimes with a basal hook-like process; last sternite in ♂♂ with the upper apical angle on each side produced into a spine- or hook-like process; very small or minute forms.

40 (*Cyrtosiinae*) (p. 966, Part I, vol. XXXIV)

5. (a) Face, even if short, more developed, sometimes much or conspicuously so to a variable extent; buccal cavity usually larger or more developed and, if small, face at least longer or more prominent; labral part of proboscis without any distinct, dense or conspicuous scaling; antennal joint 1 not conspicuously dilated or tumidly or globularly extending apically below or with an inflated, bladder- or lobe-like appendage below, at most only incrassate or clavate apically; vertex and frons rarely equally broad throughout or equally so in both sexes and, if nearly so, it is at least slightly narrowed on vertex or it is not roundly convex discally and not slightly transversely depressed anteriorly behind antennae; ocellar tubercle, even if well developed, distinctly much narrower and smaller, not markedly broad or broad and centrally grooved towards its base, and always with three well-developed ocelli; wings usually well developed, normally broad, their base not pedunculate and, if shortish and narrowed basally, an alula or a vestige of one is usually present and the third posterior cell not markedly narrowed or convergent apically. 7
- (b) Face either almost absent or facial and buccal region depressed and transformed or modified; buccal cavity either smallish or much reduced and transformed; labral part of proboscis (if latter be present) with distinct, dense and conspicuous scaling, especially towards base, or proboscis and mouth parts abnormally transformed or reduced; antennal joint 1 either with its lower apical part extending into tumidly or lobe-like or the joint with a large, conspicuous, inflated, bladder- or lobe-like extension or appendage below; vertex and frons markedly broad, equally broad throughout and in known ♂♂ as broad as in ♀♀, and either roundly convex or broadly depressed discally and usually somewhat transversely depressed anteriorly behind antennae; ocellar tubercle markedly and conspicuously broad, sometimes centrally grooved posteriorly, its ocelli widely separated, sometimes reduced in size, the posterior ones reniform and usually much larger than anterior one which may even be absent and represented by a small scar or puncture; wings relatively feebly developed, relatively short, sometimes remarkably narrow and basally pedunculate; alula absent; third posterior cell markedly narrowed and convergent apically. 6
6. (a) Face remarkably short or almost wanting, the antennae situated at apex of buccal cavity; buccal cavity normally developed and lodging a long proboscis with scales on it above basally, and slender, elongate palps; antennal joint 1 with its lower apical part produced into a smaller tumid or globular extension; antennal joint 3 longer, less bulbular basally; frons convex discally; ocellar tubercle centrally grooved posteriorly; occiput distinctly more flattened, without any tumid, lobe-like or raised prominence on each side behind upper corner of eye; scutellum larger and broader; wings markedly narrower, pedunculate basally; second vein originating much nearer base of third vein; upper cubital branch straighter, first posterior cell closed and stalked apically; legs more developed, longer, with long and strongly developed spicules and spurs on tibiae and tarsi; pulvilli longer and broader; hairs on body densely and conspicuously developed, much longer and also with stouter bristly hairs and bristles on thorax and scutellum; scales on body broader, longer and more densely developed on head, pleurae, abdomen and legs.
Oniromyia Bezz. (*Cythereinae*) (p. 986, Part I, vol. XXXIV)
- (b) Facial part in front of antennae depressed or excavate, the actual face however longer, delimited by a transverse suture in depression; buccal part transformed and reduced in form of a slightly raised boss-like elevation passing lower down into a central down-

wardly directed, triangular spine-like process (? remnant of anterior rim of reduced buccal cavity) and below or behind it on each side an oval, inflated lobe (palp), and behind or below these a supporting, central, lip-like, downwardly directed process (? remnant of posterior medial part of reduced buccal rim); antennal joint 1 below with a larger, more conspicuous, bladder- or lobe-like appendage; frons broadly depressed discally; ocellar tubercle not grooved, but rounded, posteriorly; occiput with a more distinct, broadish, central depression down head behind tubercle which is bounded on each side behind upper corner of eye by a distinct, tumid or raised, lobe-like prominence; scutellum smaller, distinctly narrower; wings distinctly broader, less pedunculate basally; second vein originating much nearer middle cross vein than base of third vein; upper cubital branch more curved; first posterior cell only narrowed apically, not stalked; legs distinctly feebler, much shorter, without any spines on femora and with only very short and small spicules and spurs on tibiae and tarsi; pulvilli narrower, shorter, more spine-like; hairs on body more feebly developed, finer and much shorter, without any stiffer hairs or bristles on any part of body; scales on body finer, narrower and smaller even where dense as on abdomen and venter. . . . *Xenoprosopa* n. gen. (*Xenoprosopinae* n. subfam.) (in Appendix, p. 942)

7. (a) Third antennal joints rod-like, club-shaped, pointed or if slightly modified they are either broad, flattened, incrassate, clavate or even excavate apically, but never ending apically in a bifid process or in an upper and a lower spine-like process or in a distinct subapical upper spine or hook-like process; hairs on genae not concentrated in a forwardly or upwardly directed tuft or brush; wings with four posterior cells and always with a discoidal cell; abdomen in ♀♀ with segment 8 normal, not produced on each side below into a lappet- or lobe-like process; thorax only rarely very convex and humped in appearance. . . . 8 (*Bombyliinae*) (p. 40, Part I, vol. XXXIV)
- (b) Third antennal joints ending apically in either a distinct upper and lower spine-like process or in a distinct subapical process and, if not, wing has only three posterior cells; hairs on genae often aggregated in a forwardly or upwardly directed tuft or brush and, if without such a brush, third antennal joints modified apically; wings sometimes with only three posterior cells and, if with four, third antennal joints end apically in two spine-like processes or in a subapical process; abdomen in ♀♀ usually with segment 8 produced on each side below into a lobe-like process; thorax more often distinctly more convex above and humped in appearance. . . . 34
8. (a) Anal cell in wings open, not angularly acute and closed or stalked apically; third antennal joints not clavate, thickened or excavated apically and rarely ending in a distinct terminal joint or terminal elements and, if with longish terminal joints, anal cell is open; hind femora at least usually spined below to a variable extent and, if without spines, anal cell is open. . . . 9
- (b) Anal cell angularly or sharply acute apically, very rarely not closed and distinctly stalked apically; third antennal joints clavate, thickened or excavated apically or ending in distinct terminal joints or elements; femora without any spines below. . . . 26
9. (a) Scutellum normal, not bilobate or bispinose apically; marginal cell in wings normal, not markedly and abnormally dilated apically; second vein straight or normal, not arcuately curved or convex hindwards towards hind border of wings; third antennal joint without a long and slender terminal joint. . . . 10
- (b) Scutellum distinctly bilobate or bispinose apically; marginal cell markedly and conspicuously broad or dilated apically; second vein arcuately curving hindwards towards hind border of wing; third antennal joint ending in a remarkably long and slender terminal or fourth joint. . . . *Othniomyia* Hesse (p. 707, Part I, vol. XXXIV)
10. (a) First posterior cell in wings acute or angularly acute and closed apically, either with a distinct stalk of variable length or merely acute and sessile on hind border, never distinctly or broadly open, and in cases with a moderately long stalk the vein between first and second posterior cells not markedly S-curved; alula usually well developed, broadly lobe-like; first antennal joints close or closer together, very rarely thickened or very incrassate; femora rarely without spines below and, if without spines, first posterior cell is closed. . . . 11

- (b) First posterior cell open or broadly open on hind border, not sessile, acute and stalked apically and, if in very rare cases this cell is stalked, the vein between first and second posterior cells is more distinctly S-curved and alula is much reduced or vestigial; first antennal joints separated or more widely apart and thickened or incrassate; femora without spines below. 17
11. (a) Frons, face and genae dull, not smooth and shining, hairy to a variable extent; face normal, not markedly conically produced and separated from frons by a distinct transverse furrow; alula in wings always broad and lobe-like; basal comb of wings distinct and more or less well developed; metapleurae usually hairy and with a distinct tuft of hairs or bristly hairs just before base of halteres and above posterior spiracles; femora, especially hind ones, spined below to a variable extent. 12
- (b) Frons, face and genae very smooth, bare and brilliantly shining black; face markedly and conically prominent, separated from frontal part, just in front of antennae, by a deep transverse furrow; alula much reduced, very narrow, not lobe-like; basal comb very feebly developed or wanting; metapleurae bare, but with a tuft of hairs in front of halteres; femora without any spines below.
- Sisyrophanus* Karsch (p. 523, Part I, vol. XXXIV)
12. (a) Hind margin of eyes without a distinct deep sinuosity or emargination; third antennal joints with only a shortish terminal joint or style; vein between first and second posterior cells in wings joining on to or received by vein separating the latter cells from second submarginal cell; frons with only hairs, without a row of stout macrochaetal bristles on each side. 13
- (b) Hind margin of eyes with a distinct deep sinuosity or comparatively deep emargination; third antennal joints with a distinctly longer and more conspicuous terminal joint or joints; vein between first and second posterior cells passing straight to hind border, being joined by or receiving the vein between first posterior and second submarginal cells as a cross vein; frons in ♀♀ at least with a row of two or more very stout and conspicuous macrochaetal bristles on each side.
- Eurycaremus* Lw. (p. 507, Part I, vol. XXXIV)
13. (a) First basal cell in wings distinctly much longer than second basal cell. 14
- (b) First basal cell as long as second basal cell. 16
14. (a) Claws without a basal tooth; pulvilli well developed; vestiture with denser or more numerous bristly elements on body, distinctly longer hairs and bristles on abdomen and without any or fewer and sparser or inconspicuous bands of hair-like scales across tergites. 15
- (b) Claws with a distinct and conspicuous basal tooth; pulvilli entirely absent; vestiture with comparatively fewer bristly elements on body, relatively much shorter hairs and bristles on abdomen and with conspicuous and broadish bands of very dense, pale or white hair-like scales across tergites.
- Zinnomyia* Hesse (p. 387, *South African Animal Life*, ii, 1955)
15. (a) Two submarginal cells present in wings. *Bombylius* L. (p. 41, Part I, vol. XXXIV)
- (b) Three submarginal cells present in wings.
- Subgen. *Triplasius* Lw. of *Bombylius* (p. 114, Part I, vol. XXXIV)
16. (a) Head across eyes markedly broad, at least as broad as or slightly broader than broadest part of thorax; frons broad, especially in ♀♀, without a distinct central groove in ♂♂ and without a transverse depression or groove apically in ♀♀; discoidal cell in wings very broad, distinctly more truncate apically, its apical vein long, usually longer than middle cross vein; squamae more distinctly bilobed, the smaller lobe nearest thorax comparatively large and broad; vestiture on face and body below always strikingly or conspicuously frosty, cretaceous or chalky white; claws more often almost straight, only slightly curved, rarely sickle-shaped; pulvilli always short, not extending beyond middle of claws, even in ♂♂. *Anastoechus* Ost. Sack. (p. 290, Part I, vol. XXXIV)
- (b) Head across eyes not markedly broad, almost always narrower than broadest part of thorax; frons comparatively narrower, with a distinct indication of a central groove

in ♂♂ and always with a transverse impression anteriorly in ♀♀; discoidal cell more acute apically, its apical vein distinctly or much shorter and usually shorter than middle cross vein; squamae less distinctly bilobed, the smaller lobe only indicated, scarcely distinct; vestiture on face and body below only rarely frosty or chalky white and then not uniformly or very conspicuously so; claws almost always sickle-shaped, either rapidly or more gradually curved down to apex, rarely almost straight; pulvilli long in both sexes, usually extending to much beyond middle of claws.

Systoechus Lw. (p. 292, Part I, vol. XXXIV)

17. (a) Antennal joints 1 and 2 not markedly incrassate and elongate and, if joint 1 is elongate, it is not conspicuously thickened and joint 2 is not elongate and strikingly incrassate and barrel-shaped; vertex in ♀♀ not convex or very tumid; ocellar tubercle not markedly elevated; face usually more prominent; palps not visibly and obviously or distinctly triarticulate; two or three submarginal cells in wings. 18
- (b) Antennal joints 1 and 2 markedly elongate, conspicuously thickened and incrassate, joint 2 being especially elongate, incrassate and barrel-shaped; vertex in ♀♀ more or less tumidly raised or convex; ocellar tubercle very prominent and elevated; face poorly developed, only bluntly rounded; palps obviously and distinctly triarticulate; only two submarginal cells in wings.

Conophorina Beck. (p. 705, Part I, vol. XXXIV)

18. (a) Two submarginal cells in wings. 19
- (b) Three submarginal cells in wings. 25
19. (a) Occipital part on each side behind eyes normal, not broad and somewhat inflated; face narrower and, if convex or slightly conical, not tumidly prominent medially; third antennal joints rod-like, slender and pointed, not elliptical or shortly spindle-shaped and not covered with dense spinule-like hairs; wings, if infuscated, not mottled or marbled. 20
- (b) Occipital part on each side behind eyes broad and somewhat inflated or tumidly prominent; face relatively broadly and tumidly prominent; third antennal joints distinctly spindle-shaped, covered with dense, spinule-like pubescence; wings extensively and characteristically mottled or marbled.

Prorachthes Lw. (Syn. = *Cheilohadrus* Hesse, p. 674, Part I, vol. XXXIV) (in Appendix, p. 934)

20. (a) Body shorter or more plump, the abdomen more ovate and shorter; wings rarely with the basal comb wanting or with the alula much reduced or vestigial and, if so, vein between submarginal cells distinctly more S-curved; antennae with joint 3 stouter, more rod-like, usually shorter and more bluntly pointed and, if slender and sharply pointed, first joints are thickened and more widely apart; apical joint of palps slender, not clavate or thickened, nor directed upwards; metapleurae usually with some hairs, rarely entirely bare and, if bare, hind femora without spines. 21
- (b) Body more elongate and cylindrical, the abdomen markedly elongate; wings without a basal comb, the alula much reduced or vestigial and vein between submarginal cells less S-curved; antennae with joint 3 distinctly more slender, elongate and pointed; apical joint of palps short, thickened and directed upwards; metapleurae entirely bare. 24
21. (a) First antennal joints more distinctly separated, very much thickened and incrassate or barrel-shaped; joint 3 elongate, slender, spindle- or sub-spindle-shaped, its apical part very slender; face somewhat produced, spout-like, bare; alula in wings much reduced and axillary lobe also narrowish and reduced, the base of wings thus narrowed; middle cross vein very much beyond middle of discoidal cell; first posterior cell acute or much narrowed apically, sometimes closed and stalked; vestiture with the hairs very dense, fine, shaggy, puff-like, and those on head in front and on antennae very long, dense and conspicuous; metapleurae bare; femora with dense, longish hairs below, without any spines; last sternite in ♂♂ elongate and scoop-like.

Dischistus Lw. s. str. (p. 527, Part I, vol. XXXIV)

- (b) First antennal joints contiguous, scarcely thickened, usually slender; joint 3 rod-like or more conical, not spindle-shaped; face broadly rounded, not prominent or much

produced, often hairy; alula and axillary lobe well developed, broadish and lobe-like, the base of wings thus not markedly narrowed; middle cross vein very much before middle of discoidal cell, at or near middle or only a little beyond middle; first posterior cell, even if narrowed apically, always open; vestiture with the hairs much shorter, less dense, not very shaggy, sometimes comparatively sparse and short, those on head in front less dense and much shorter; metapleurae with some hairs and scales and always with a metapleural tuft of hairs or scales; femora always with some spines below on at least hind ones and, if with hairs in addition to spines, the former are much shorter; last sternite in ♂♂ shortish, broad, truncated or slightly rounded, not scoop-like. 22

22. (a) Vestiture on body with the individual hairs and bristles not distinctly frayed or fimbriate apically, without very dense, flattened, lanceolate scales on pleurae and body below and with scaling, if present, denser only on body above; frons in ♀♀ with a distinct transverse impression anteriorly; antennal joint 1 not distinctly thickened; antennal joint 3 without distinctly visible short hairs, its terminal joint usually longer, conical, more conspicuous; basal comb of wings slightly or distinctly more developed; discoidal cell longer and narrower; anal cell not tending to be very much narrowed or subacute apically; pulvilli, even if reduced, still more conspicuous at base of claws. 23
- (b) Vestiture on body above with the individual hairs and bristles frayed or fimbriate at their apices, with very dense, hair-like, whitish or cinnabar-red scales on body above and dense, flattened, lanceolate ones on face, antennae, pleurae and venter; frons in ♀♀ convex, without a transverse impression and face broadly rounded and not prominent; antennal joint 1 slightly, but distinctly, thickened; antennal joint 3 with distinct short hairs, its terminal joint minute or in form of a hair-like stylet; basal comb feebly developed; discoidal cell shorter, broad, triangular or bell-shaped; anal cell tending to be narrowed or even acute apically; pulvilli much reduced, vestigial, scarcely visible in ♀♀, only indicated in ♂♂. . . *Lepidochlanus* Hesse (p. 613, Part I, vol. XXXIV)
23. (a) Eyes only subcontiguous, or narrowly or broadly separated to a variable extent above in ♂♂ and broadly or very broadly so, usually from 3 to 5 times width of ocellar tubercle, in ♀♀; frons with the transverse depression in ♀♀ at about or just a little beyond middle; frons and face dull, not shining; antennal joint 1 usually longer; antennal joint 3 shorter and even if longish never more than about $1\frac{1}{2}$ times length of joints 1 and 2 combined, slightly curved and gradually narrowed apically; middle cross vein in wings usually very much before middle, rarely near or at middle, of discoidal cell; the latter distinctly broader, more truncate apically; basal comb usually slightly more developed; hairs on body on the whole shorter in ♂♂, less sparse in ♀♀, with some hairs on face in both sexes and without silvery or black tufts on sides of antennae; scaling on body above without opalescent, gleaming, silvery white or dense golden ones on thorax and abdomen; body usually with much red or reddish on face, pleurae and abdomen; posterior lateral angles of last sternite in ♂♂ more rounded; pulvilli sometimes short.

Doliogethes Hesse (p. 545, Part I, vol. XXXIV)

- (b) Eyes always in direct or actual contact for a short distance above in ♂♂ and not very broadly separated, usually only about or less than 3 times width of ocellar tubercle, in ♀♀; frons with the transverse depression in ♀♀ farther forwards, just behind antennae, and often with a central depression leading up to tubercle; frons and face in ♀♀ and face in ♂♂ very often brilliantly shining black; antennal joint 1 usually shorter, less than or only about $2\frac{1}{2}$ times length of joint 2; antennal joint 3 more elongate, at least or usually more than $1\frac{1}{2}$ times combined length of 1 and 2, straight and rod-like; middle cross vein in neighbourhood of middle of discoidal cell; the latter more narrowed apically; basal comb smaller; hairs on body on the whole sparser, more so in ♀♀, rarely dense in ♂♂, that on face more often wanting, and rarely without a silvery tuft on each side of antennae in ♀♀; scaling on body above denser and more conspicuous, especially in ♀♀, more often with opalescent, glittering, bluish or greenish, metallic ones on frons and body above in ♀♀ and with silvery white ones on abdomen above in both sexes or especially in ♂♂; body, including scutellum, predominantly

black, rarely with reddish on pleurae or abdomen; posterior lateral angles of last sternite in ♂♂ more angular or angularly produced; pulvilli reaching apices of claws.

Chasmoneura Hesse (p. 586, Part I, vol. XXXIV)

24. (a) Body less cylindrical, less humped and the abdomen broader; hairs on body much denser, more shaggy and puff-like, those on antennae below and on face very much shorter and those on abdomen distinctly much longer, denser and also present dorsally above; frons in ♀♀ without a distinct transverse depression; antennae shorter and joint 1 much shorter, less than 5 times length of joint 2; second vein in wings straight, less sinuous at end; alula, though reduced, broader, more developed; anal cell more narrowly open; legs distinctly less developed, shorter, with longer and denser hairs on femora below in both sexes and middle tibiae with one or two pallid spurs apically below. *Gonarthrus* Bezz. (p. 619, Part I, vol. XXXIV)
- (b) Body more elongate and more cylindrical, the thorax slightly, but distinctly, more humped and abdomen narrower, more cylindrical; hairs on body distinctly sparser, less dense, less fine, not fine and puff-like on thorax, those on antennae below and face very much longer and those on abdomen less dense, shorter, sparse or absent above; frons in ♀♀ with a distinct groove-like depression; antennae much longer and joint 1 conspicuously elongate, quite 5, or slightly more, times length of 2; second vein slightly undulating and distinctly more sinuous at end; alula very much reduced, vestigial; anal cell more broadly open; legs longer, more powerful, with much shorter and fewer hairs on femora below and with the apical spurs of middle tibiae all unicolorous. *Paratoxophora* Engel (p. 669, Part I, vol. XXXIV)
25. (a) Antennal joint 3 from side not markedly broadened towards base, not distinctly hollowed out below in ♂♂, not conspicuously broad and bellows-shaped in ♀♀, without long, stoutish, bristly hairs or bristles near its base above and long, slender hairs near its apex below; antennal joint 1 not markedly thickened; frons in ♀♀ without or with a less distinct, transverse depression, which, if indicated, is slightly farther back; hairs on face and genae shorter and sparser; base of wings above without pubescent hairs; alula with a distinct fringe. *Adelidea* Macq. (p. 680, Part I, vol. XXXIV)
- (b) Antennal joint 3 from side markedly broader and dilated near base, hollowed out or slightly excavated below in ♂♂, very strikingly broadened basally and bellows-shaped in ♀♀, with long, bristly hairs or bristles near its base above and also near its apex below in both sexes; antennal joint 1 distinctly thickened and incrassate; frons in ♀♀ with a more distinct, transverse depression just behind antennae; hairs and bristly hairs on face and genae distinctly longer and denser; base of wings above with distinct pubescent hairs; alula with an almost absent, very sparse or vestigial fringe. *Sosiomyia* Bezz. (p. 702, Part I, vol. XXXIV)
26. (a) Head very broad, sometimes conspicuously broad, as broad as or broader than thorax; eyes in ♂♂ broadly separated, at least as broad as broad ocellar tubercle and sometimes very much broader; frons broad; facial region usually very broad, inflated or tumid and sometimes with a characteristic dense brush of bristly hairs constituting a circumoral brush; third antennal joints clavate, thickened or excavated apically, their terminal elements reduced or absent; thorax not humped; three submarginal cells sometimes present in wings; last sternite in ♂♂ notched medially; vestiture on body longer and denser. 27 (*Corsomyza*-group) (p. 712, Part I, vol. XXXIV)
- (b) Head normal, not markedly broad; eyes in ♂♂ contiguous or in contact above in front of tubercle for a variable distance; frons narrow or small; facial region narrow, small or conical, not inflated or tumid and without a circumoral brush; third antennal joints tapering and ending in a terminal joint or elements, their apical part not clavate or excavated; thorax usually humped in appearance; only two submarginal cells present; last sternite in ♂♂ not notched medially; vestiture much shorter and sparser. 31
27. (a) Facial region less tumid or not so markedly tumidly prominent; frons also less tumid; sides of face, face and genae much less inflated; buccal cavity situated more in front of head; first antennal joints usually longer, not distinctly thickened and barrel-shaped; proboscis usually longer, at least always projecting beyond antennae. 28

- (b) Facial region remarkably and abnormally broad, markedly tumidly prominent or inflated; frons in front more tumidly prominent; sides of face (or face) and genae very tumid or inflated; buccal cavity situated more below head due to inflated facial region; first antennal joints short or very short, thickened or even sub-barrel-shaped; proboscis very short, confined to buccal cavity or at least not projecting beyond antennae. 30
28. (a) Head in front markedly broad, the facial region very broad and sides of face and genae more tumid; inner margins of eyes distinctly diverging down sides of facial part in both sexes, the head below being much broader than vertex, even in ♀♀; antennae inserted much higher up, at least half or very nearly half the distance between front ocellus and edge of buccal rim; hairs on body distinctly denser, more conspicuous, especially in ♂♂, those on facial region in form of a distinct and characteristic, dense, circular or circumoral brush, even in ♀♀ and, if not conspicuous in some ♀♀, hairs on face at least more numerous; empodium between claws and pulvilli usually slightly longer, more developed. *Corsomyza* Wied. (p. 714, Part I, vol. XXXIV) 29
- (b) Head in front slightly narrower, the facial region not conspicuously broad and sides of face and genae not very tumidly prominent; inner margins of eyes down sides of facial part subparallel in ♀♀ at least, the head below only about as broad as or scarcely broader than vertex and, if broader as in some ♂♂, facial region is distinctly less broad; antennae inserted much lower down, either just above buccal rim or at much less than half distance between buccal rim and front ocellus; hairs on body very much sparser, the ♀♀ sometimes almost bare, and in both sexes without a distinct, circular and dense circumoral brush; empodium less distinct and shorter. 29
29. (a) Eyes broadly separated above in both sexes, the interocular space on vertex very much broader than ocellar tubercle; inner margins of eyes parallel or subparallel in both sexes; buccal rim in facial part protruding prominently, spout-like, especially its upper part; antennae inserted higher up nearer middle of distance between buccal rim and front ocellus; proboscis longer; palps longer, more slender; a distinct stoutish, prealar bristle present; pleurae almost entirely bare and shining and a small metapleural tuft absent; wings comparatively shorter; alula more reduced or vestigial; axillary lobe also much narrower, more reduced; legs with much sparser hairs and with only inconspicuous or without any bristly hairs apically above last tarsal joint. *Megapalpus* Macq. (p. 759, Part I, vol. XXXIV)
- (b) Eyes more narrowly separated above in ♂♂, only by width of ocellar tubercle or a little more, very much narrower than in ♀♀; inner margins of eyes in ♂♂ diverging, not parallel; buccal rim not protruding or spout-like; antennae inserted almost immediately above buccal rim; proboscis usually much shorter; palps less elongate, usually thicker; no distinct stoutish prealar bristles present; pleurae with more, though sparse, hairs even in ♀♀, and with a small metapleural tuft usually present; wings distinctly longer; alula broader, less reduced; axillary lobe much broader, often markedly triangularly lobe-like; legs with slightly more numerous hairs on femora, even in ♀♀, and with at least one or a few long bristly hairs on last tarsal joint apically above. *Hyperusia* Bezz. (p. 764, Part I, vol. XXXIV)
30. (a) Front half of frons and sides above antennae very broad and inflated, the most prominently inflated cephalic part thus above antennae; antennae inserted immediately above buccal cavity, the first joints contiguous basally, more thickened and sub-barrel-shaped; joint 2 with a dense coat of fine, spinule-like hairs; joint 3 clavate or distinctly more broadened apically; proboscis slightly longer, more slender, its labellar lobes narrow, more pointed, not fleshy; hair in ♂♂ at least longer, denser, with a well-developed, dense, circular, circumoral brush and with a small metapleural tuft present; two or three submarginal cells in wings; tibiae not feathery in appearance, without dense hairs; last tarsal joint without or with only inconspicuous hairs apically above. *Callynthrophora* Schin. (p. 775, Part I, vol. XXXIV)
- (b) Face, sides of face and genal parts very broad and markedly inflated, the entire facial part below antennae thus more inflated; antennae inserted very high up, very much nearer front ocellus than buccal cavity, the first joints widely separated at base, at least as wide as space between posterior ocelli; joint 2 without any visible spinule-like

hairs; joint 3 more rod-like, not markedly clavate apically; proboscis very short, stoutish, more or less confined to buccal cavity, spinulated below, its labellar lobes broad and fleshy; hair in ♂♂ at least distinctly shorter, sparser, and without a distinct, well-marked-off circumoral brush, but with the hairs on lower facial and genal parts dense, and without a metapleural tuft; three submarginal cells in known forms; tibiae more hairy and at least hind ones feathery in appearance, due to dense hairs; last hind tarsal joint at least with one or a few longish hairs apically above.

Gnumyia Bezz. (p. 780, Part I, vol. XXXIV)

31. (a) Thorax more convex, more humped in appearance; hairs on body longer and denser; scales present on body to a variable extent; frons less convex, more or less transversely depressed anteriorly, especially in ♀♀; face less conically prominent, not or scarcely demarcated from frontal part; first antennal joints 2 or more times as long as second joints; third vein in wings not bending towards discoidal cell at level of middle cross vein; base of second submarginal cell broader, more truncate; legs longer, more slender; tibiae with longer and more strongly developed spicules and middle ones with a distinct longer apical spur below; front coxae longer.

32 (*Crocidium*-group) (p. 785, Part I, vol. XXXIV)

- (b) Thorax less convex, less humped; hairs on body very short and sparse, the head and body almost bare; scaling on body absent; frons in ♀♀ at least more convex, not depressed anteriorly; face more conically prominent, distinctly more delimited from frontal part; first antennal joints shorter, less than 2 times as long as second joints; third vein distinctly bending towards discoidal cell at level of middle cross vein; base of second submarginal cell angularly acute; legs much shorter, stouter; tibiae with feebler or poorly developed spicules and middle tibiae without a long spur apically below; front coxae very much shorter, plumper.

Heterotropinae (*Heterotropus* Lw.) (p. 819, Part I, vol. XXXIV)

32. (a) Antennae much shorter; first joints not thickened and distinctly much shorter, much shorter than third joints or very much less than 6 times length of second joints and first and second joints combined also very much shorter than third (including terminal elements); body not simulating that of a Therevid. 33

- (b) Antennae elongate; first joints conspicuously elongated and somewhat thickened, slightly longer than or subequal in length to third joint (including terminal elements) or quite 6 times length of second joints and first and second joints combined subequal in length to or slightly longer than third; body with a marked resemblance to that of a Therevid. *Apatomyza* Wied. (p. 818, Part I, vol. XXXIV)

33. (a) Head slightly less spherical; occiput more normally concave; frons in ♀♀ becoming distinctly wider anteriorly, the inner margins of eyes very distinctly diverging anteriorly and distance between eyes across buccal part considerably broader than across face or frons in both sexes; genae distinct, comparatively broad or very broad, the furrow on each side of buccal rims some distance away from inner margins of eyes; frons and face sometimes brilliantly shining and usually with a yellow transverse band across facial part in ♀♀; apical joint of palps slightly longer, more clavate apically; wings less elongate, hyaline or spotted; alula broader, more distinctly lobe-like; axillary lobe usually broader, triangularly produced and rounded posteriorly; knobs of halteres much shorter, much less than twice as long as broad; thorax less markedly humped and body on the whole shorter, not resembling that of an Empid.

Crocidium Lw. (p. 786, Part I, vol. XXXIV)

- (b) Head more spherical; occiput less concave; frons in ♀♀ scarcely or not becoming much wider anteriorly, the inner margins of eyes tending to be parallel or subparallel even down sides of face and distance between eyes across buccal part only a little or scarcely broader than across face or frons; genae almost absent, represented along inner margins of eyes only as a narrow line, almost absent or even obliterated at about middle and, if indicated, only narrowly visible on each side below (the groove on each side of buccal cavity thus only separating inner margins of eyes from buccal rims); frons and face usually dull, not shining; apical joint of palps usually shorter, distinctly more ovate; wings more elongate, tinged or infuscated; alula distinctly more reduced, narrower; axillary lobe not so triangularly prominent, even if broadish, more rounded;

knobs of halteres more developed, usually larger and longer, nearly or quite twice as long as broad; thorax distinctly more humped and body more elongate, in general appearance suggesting that of an Empid or a Culex.

Adelogenys Hesse (p. 811, Part I, vol. XXXIV)

34. (a) Face usually very short, sometimes almost non-existent; antennae with joint 1 very short, never more than about $1\frac{1}{2}$ times length of joint 2; joint 3 modified, ending apically in either an upper and a lower spine-like process or in a subapical upper process or spine; hairs on genae on each side not concentrated into a forwardly and upwardly directed brush or tuft; wings with 3 or 4 posterior cells and with or without a discoidal cell, the apical cross vein of latter (if present) not or scarcely S-curved; upper vein of second basal cell without a knob-like thickening near its base; segment 8 of abdomen in ♀♀ without a distinct lobe-like process or lappet ventrally on each side; tarsi without a patch or clump of a few longer spicules basally below on basal joint.

35 (*Phthiriinae*) (p. 822, Part I, vol. XXXIV)

- (b) Face usually distinct and conical; antennae with joint 1 longer, usually longer than $1\frac{1}{2}$ times length of joint 2; joint 3 not modified, only tapering to a fine point; hairs on genae on each side produced into a forwardly and upwardly directed brush or tuft; wings always with only 3 posterior cells and always with a discoidal cell, the apical cross vein of which is very markedly S-curved; upper vein of second basal cell always with some knob-like thickening near its base; segment 8 of abdomen in ♀♀ with a distinct lobe-like process or lappet ventrally on each side; tarsi with a distinct patch or clump of a few longer spicules basally below on basal joint.

39 (*Geroninae*) (p. 866, Part I, vol. XXXIV)

35. (a) Four posterior cells in wings; discoidal cell present; second submarginal cell very obtuse basally, its upper vein sharply bent at base; third antennal joints more spindle-shaped, with a distinct and often prominent upper apical or subapical, spine-like process, often forming a symmetrical or unsymmetrical bifid process with a distinct lower apical process or prominence, and with conspicuous, short, bristly hairs on the joints above, especially in ♂♂; tibiae with distinct, though feeble, spicules; last tarsal joint not very distinctly or markedly thickened or broader than the others; body in ♀♀ sometimes with much yellow even on head, thorax and pleurae, and with the hair on the whole longer and denser. . . . *Phthiria* Meig. (p. 824, Part I, vol. XXXIV)

- (b) Only three posterior cells in wings; discoidal cell sometimes absent; second submarginal cell distinctly much more acute to very acute basally, its upper vein scarcely or only slightly bent at base; third antennal joints more oval or equally broad throughout (side view), with only a single subapical or apical upwardly directed, spine-like process just in front of which there is dorsally also a depression or hollow lodging the terminal style, and either without or with only fine and inconspicuous bristly hairs on the joints above, even in ♂♂; tibiae without any distinct or visible spicules, apparently covered only with fine hairs or pubescence; last tarsal joint distinctly and visibly thickened and broader than the other joints; body without yellow markings on head and thorax and with the hair on body distinctly less developed, the greater part of it being more often almost bare. . . . 36

36. (a) A discoidal cell in wings absent; second submarginal cell more distinctly acute basally; eyes in ♂♂ in contact or separated above; hair on body more conspicuously developed, even if sparse, with distinctly longer and more conspicuous ones on coxae and legs in both sexes; thorax comparatively broader, more subglobularly rounded; last sternite in ♂♂ more elongate, scoop-like, narrowed or pointed apically. . . . 37

- (b) A discoidal cell present; second submarginal cell more obtuse basally; eyes in ♂♂ in contact above; hair on body very short, very sparse, the greater part of body almost bare and with shorter and fewer hairs on coxae and only fine pubescence on femora and tibiae; thorax slightly more elongate, narrower, more humped in appearance; last sternite in ♂♂ not conically produced.

Oligodranes Lw. (p. 861, Part I, vol. XXXIV)

37. (a) Eyes in ♂♂ in actual contact above for some distance, the upper facets being coarser than lower ones; palps usually longer, more developed, the apical joint usually slightly thicker than basal one; hair on body distinctly more developed in both sexes

and longer, that on legs also more conspicuous and with a distinct row of longer hairs on outer side of tibiae in both sexes; legs on the whole slightly longer; wings slightly longer. . . . *Apolysis* Lw. (p. 848, Part I, vol. XXXIV)

- (b) Eyes in both sexes comparatively broadly separated, the upper facets in ♂♂ not differentiated from lower ones; palps very short, the apical joint apparently not thicker than basal one; hair on body much sparser and very much shorter in both sexes, that on legs distinctly shorter and without a distinct row of longer hairs on tibiae; legs on the whole stouter; wings comparatively shorter.

Subgeneric form of *Apolysis* (p. 848, Part I, vol. XXXIV)

38. (a) Thorax markedly convex above or humped, the pleurae compressed and markedly high; head more globular; genae much narrower and the width from eye to eye across buccal cavity considerably narrower, not, scarcely, or only a little broader than across face; eyes in ♂♂ in actual contact for a long distance or at least distinctly contiguous, the line of contact rarely not impressed; frontal triangle in ♂♂ usually small; ocellar tubercle more elevated, prominently pimple-like on vertex; palps shorter; wings usually narrower and less elongate; base of second submarginal cell rarely with a tendency to be opposite apex of discoidal cell, distance between middle cross vein and base of second submarginal cell thus rarely very much or distinctly shorter than that between former and fork of second and third veins; spicules on tibiae extending from near their bases. . . . 39

- (b) Thorax less markedly convex or humped, the pleurae less high; head slightly more dorso-ventrally depressed; genae very broad and width from eye to eye across buccal cavity very much broader, considerably broader than across face or frons anteriorly; eyes in ♂♂ not in actual contact above for a long distance, distinctly separated or only subcontiguous at narrowest part by a space as broad as front ocellus, the line of subcontiguity (if present) not deeply impressed; frontal triangle in ♂♂ thus much larger; ocellar tubercle not markedly elevated; palps slightly longer, more slender; wings more elongate; base of second submarginal cell with a tendency to be more or less opposite apex of discoidal cell, distance between it and middle cross vein thus much shorter than, rarely subequal to or as long as, distance between the latter and fork of second and third veins; spicules on tibiae almost confined to their apical half or part. . . . *Pseudoamictus* Big. (= *Pseudempis* Bezz.) (p. 958, Part I, vol. XXXIV)

39. (a) Head with dense, silvery white scaling and whitish hairs or at least with white hairs on sides of frons and face, upper parts of genae and along hind margin of eyes, without any black hairs on frons in ♀♀ or on antennae in both sexes; middle part of genae bare and genae sometimes gleaming ivory whitish or yellowish; rest of hair on body above in ♂♂ denser, slightly longer, never very dark or blackish above, in ♀♀ also distinctly denser, pale or whitish above, never with black ones intermixed; inner margins of eyes in ♂♂ not, scarcely, or not distinctly sinuate opposite antennae; interocular space in ♀♀ broader, usually about twice width of ocellar tubercle; first antennal joints closer together, never longer than about 3 times length of joint 2, not dilated or thickened basally, without long, dense and bushy hairs; wings never infuscated; second submarginal cell much shorter, about as broad apically as long along lower vein or at least never more than twice as long as broad apically; apical vein of discoidal cell only slightly S-curved; alula distinctly more developed, more lobe-like or tongue-like; knobs of halteres rarely darkened above.

Geron Meig. (p. 867, Part I, vol. XXXIV)

- (b) Head without silvery white scaling and white hairs on sides in front, no silvery scaling behind eyes, the face and sides of frons being entirely bare, without any hairs, with only a duplicated row of short, blackish, bristly hairs on each side of middle of frons in ♀♀ and with entirely or predominantly blackish ones on first antennal joints in both sexes; genae with only extreme upper part bare, the middle and lower parts with long hairs and genae never gleaming ivory whitish; rest of hair on body above less dense and on the whole shorter in both sexes, more so in ♀♀, mainly dark or with much black hair above in ♂♂, and in ♀♀ with very dark or blackish, short, bristly ones on head, thorax and scutellum; inner margins of eyes in ♂♂ distinctly and more conspicuously sinuate opposite antennae; interocular space in ♀♀ much narrower, less than twice

width of tubercle; first antennal joints distinctly wider apart, longer, usually more than 3, rarely only about 3, times length of joint 2, often markedly thickened or dilated basally, especially in ♂♂, and more often with very long, conspicuous, bushy, black hairs in ♂♂; wings sometimes tinged cinereous, smoky or even very darkly; second submarginal cell always very much longer, distinctly much longer along lower vein than twice apical width, its sides thus more parallel; apical vein of discoidal cell rarely not distinctly or markedly S-curved; alula distinctly less developed, only slightly lobe-like, less produced; knobs of halteres more often darkened above.

Amictogeron Hesse (p. 918, Part I, vol. XXXIV)

40. (a) A distinct and normal marginal cell present in wings; discoidal cell absent or present; two basal cells always present; head below not sulcate longitudinally; terminal (or fourth) antennal joints broad, more joint-like, not slender and style-like; body larger, more than 2 mm. long and with wings more than 2 mm. long, the integument, especially black parts, more brilliantly shining; hair, even if sparse, distinctly longer and more conspicuous. 41
- (b) A marginal cell wanting; discoidal cell present or absent; only a single basal cell sometimes present; head below longitudinally sulcate; terminal (or fourth) antennal joints distinctly more slender and style-like; body smaller, less than 2 mm. long, and with wings only about or less than 2 mm. long, the integument duller, less shining; hair very short, less conspicuous. 43
41. (a) Body more slender, elongate, the thorax more roundly humped; head elongate, the occipital region markedly elongate and convex, not flattened; eyes shifted forwards; head below produced posteriorly into a blunt, spine-like process and the eyes touching or very nearly touching below; frons foveately depressed in both sexes, the space on vertex equally broad in both sexes and inner margins of eyes distinctly converging apically; antennae shorter, with joint 3 comparatively broader; proboscis more slender, its labellar lobes very short and pointed; palps not discernible; wings with microtrichiae along hind border markedly conspicuous and the fine hairs on membrane distinct; first basal cell not shorter or very much narrower than second one; discoidal cell present or absent; anal cell open; axillary lobe narrow; legs more slender, less conspicuously hairy; front and middle tibiae at least longer than femora; hind tarsi in ♂♂ normal; hair on body shorter, less developed. 42
- (b) Body more plump, not slender and elongate, the thorax less roundly humped; head normal, subglobular, the occipital part short and normal, flattened; eyes situated normally; head below short and normal, not produced basally, and the eyes very broadly separated below; frons not foveately depressed, very small in ♂♂, the eyes in ♂♂ being in actual contact above, the space on vertex in ♀♀ broad and inner margins of eyes at least subparallel; antennae more elongate, with joint 3 more slender and elongate; proboscis plumper, stouter and with longer labellar lobes; palps small, but discernible; wings with the microtrichiae short and inconspicuous and without conspicuous, fine hairs on membrane; first basal cell much shorter and narrower than second one; discoidal cell absent; anal cell acute apically, closed or provided with a stalk; axillary lobe broader, well developed, lobe-like; legs stouter, relatively shorter, more conspicuously hairy; front and middle tibiae scarcely longer than femora, the hind ones even shorter; base of basal joint of hind tarsi in ♂♂ produced into a hook-like, curved process; hair on body distinctly longer and denser, especially in ♂♂. *Onchopelma* Hesse (p. 973, Part I, vol. XXXIV)
42. (a) Discoidal cell present in wings; basally directed process on head below shorter. *Platypygus* Lw. s. str. (p. 968, Part I, vol. XXXIV)
- (b) Discoidal cell absent; basally directed process on head below more developed, longer and more distinct.
- Ceratolaemus* Hesse subgen. of *Platypygus* Lw. (p. 969, Part I, vol. XXXIV)
43. (a) Wings with two basal cells; second vein originating from third as a fork; fourth vein originating from apical cross vein of second basal cell; submarginal cell much longer; last posterior cell very much shorter; indentation or notch in inner margin of eyes opposite antennae feeble or almost indistinct; anterior ocellus nearer to posterior ones. 44

- (b) Wings with only a single basal cell; second vein only represented in apical part of wings; fourth vein originating near apex from lower vein of single basal cell; submarginal cell much shorter; last posterior cell very much longer and elongate; indentation in inner margin of eyes opposite antennae distinctly much deeper and more conspicuous; anterior ocellus situated distinctly more forward.

Doliopteryx n. gen. in footnote p. 39, Part I, vol. XXXIV (in Appendix, p. 936)

44. (a) Discoidal cell absent in wings. *Empidideicus* Beck. (p. 979, Part I, vol. XXXIV)

- (b) Discoidal cell present.

Anomaloptilus Hesse subgen. of *Empidideicus* (p. 983, Part I, vol. XXXIV)

45. (a) Antennae closer together, space between them usually less than or only about length of basal joint, rarely wider apart; plumula or small tuft of hair on ligamentous connection between squama and scutellum usually absent; second vein in wings usually originating acutely or obtusely, rarely at right angles, either at or very near base of third vein or at some point between base of latter and middle cross vein which is either farther away from middle cross vein than length of latter itself or nearer base of third vein than to middle cross vein; hind margin of eyes either sinuous or indented or not indented and either with or without a short, abbreviated, bisecting line extending forwards from such an indentation if present. 46

- (b) Antennae more widely separated, space between them usually more or considerably more than length of basal joint; plumula always present and well developed; second vein originating at right angles, or almost at right angles, from third vein either at a point not farther away from middle cross vein than length of latter itself or in very close proximity to middle cross vein or even directly opposite and in line with it and never near base of third vein or some considerable distance away from middle cross vein; hind margin of eyes always with a distinct sinuation or fairly deep angular indentation or emargination and rarely without a short bisecting line or an indication of one extending forwards from this indentation. 64

46. (a) Facial and buccal part of head remarkably transformed and aberrant, depressed or excavated; mouth parts very aberrant, represented by a slight, central, boss-like elevation from the lower part of which projects a short, central, blunt, downwardly directed, spine-like process (medial anterior part of buccal rim), bounded on each side below by an oval, inflated lobe (? palps) and below these by a supporting, central, lip-like projection (medial posterior part of buccal rim); actual face below or in front of antennae short, its anterior margin evident as a slight transverse ridge in depressed part; antennae somewhat close together, with hairs on all the joints, joint 1 produced below into a large, conspicuous, densely haired, bladder-like or lobe-like extension and joint 3 stoutish, bluntly tapering; frons remarkably broad, more or less equally broad throughout; occiput not deeply excavate behind, only slightly concave, very broadly and shallowly depressed groove-like behind and below ocellar tubercle, bounded on each side by a tumid, lobe-like prominence; ocellar tubercle remarkably broad, slightly elevated boss-like, its posterior ocelli wide apart and reniform and its anterior one much reduced; hind margin of eyes only feebly sinuous, not indented and not bisected; scutellum narrowish, subtumid; wings without a basal comb and with the discoidal cell short; third posterior cell markedly narrowed and converging apically; legs shortish, without any spines on femora below; spicules and spurs on tibiae and tarsi feebly developed, very short; vestiture in form of fine hairs and scaling, not densely developed, without any stiff, bristly hairs or bristles on any part of body, and hairs on abdomen markedly short and poorly developed.

Xenoprosopa n. gen. (*Xenoprosopinae* n. subfam.) (in Appendix, p. 942)

- (b) Facial and buccal parts of head not markedly transformed, either normally developed or if mouth parts are wanting, facial and buccal parts not depressed or excavated; mouth parts usually well developed, in form of a proboscis of variable length and linear, rod-like or unmodified palps in a distinct buccal cavity and, if rarely these structures are not present, the palps are not in form of lobes and face is not depressed; face usually well developed or even long and conically produced and, if short, buccal cavity and mouth parts are normally developed; antennae usually with hairs only on joints 1 and 2, without a conspicuous lobe-like extension below joint 1, at most with

only a slight thickening apically below and joint 3 usually less stoutish or shaped differently; frons relatively much narrower and, even if broadish anteriorly, usually much narrower on vertex than anteriorly; occiput very deeply excavated behind, with a very much deeper, more slit-like or channel-like groove or sulcation behind ocellar tubercle, bounded on each side by a more distinct occipital lobe; ocellar tubercle narrower, smaller and with its three ocelli more or less equally developed and at least with anterior one also well developed; hind margin of eyes more often emarginate or indented and with a bisecting line and, if without these, facial region at least not aberrantly transformed; wings usually with a basal comb and with a relatively longer discoidal cell; third posterior cell either not narrowed apically or not so characteristically converging; legs longer, usually more developed, usually with a variable number of spines on at least middle and hind femora; spicules and spurs on tibiae and tarsi distinctly more strongly developed, longer and, if minute or absent, other characters do not differ; vestiture denser and usually with at least some stiffer bristly hairs or bristles on thorax, scutellum, coxae and abdomen, those on hairs on latter rarely very fine and short. 47

47. (a) Face markedly short, the apex of buccal cavity almost abutting on antennae; proboscis long, projecting very considerably beyond buccal cavity; genal furrows well developed, deep; hind margin of eyes not emarginate or indented or even with a tendency to be distinctly sinuous; third antennal joints elongate, sub-rod-like or slightly spindle-shaped, never broadened knob- or club- or bulb-like basally; vestiture with distinctly more numerous, much stouter and stiffer bristles on thorax, sides of thorax, scutellum and on coxae; wings usually distinctly spotted or marbled; legs more strongly developed, with more numerous, more conspicuous and stouter spines on femora below, especially hind ones, and more strongly developed spicules and spurs on tibiae; body plumper, more bee-like or Tachinid-like. 48 (*Cyleniinae*) (p. 27)
- (b) Face not markedly short, sometimes markedly and characteristically produced or even prominently snout-like, the apex of buccal cavity always some distance away from antennal insertions even if face is not produced; proboscis relatively very much shorter, projecting only slightly beyond buccal cavity, very often almost or entirely confined to latter; genal furrows less distinct or only indicated along their upper part; hind margin of eyes sometimes with a tendency to be more sinuous or it is distinctly indented or emarginated and often bisected as well; third antennal joints either short, elliptical and very broad, or broadened knob- or club- or bulb-like basally to a variable extent; vestiture without any or with distinctly less stout, less stiff, fewer and less conspicuous bristles among rest of hair; wings rarely spotted or marbled to the same extent; legs weaker, less strongly developed, without any or with much fewer and weaker spines on femora and without any or finer and more slender spicules and spurs on tibiae; body usually narrower, relatively more elongate and, if broadish, with a more flattened abdomen. 50 (*Bombyliidae Tomophthalmæ* of authors)
48. (a) Occipital region more developed, broader, longer behind tubercle and on sides behind eyes, its central sulcation longer, narrowly slit-like and ocellar tubercle not distinctly marked off from occipital lobes by a suture; eyes in ♂♂ contiguous or in contact for some distance in front of tubercle; frons in both sexes much narrowed, less convex; facial part black, with dense hair on sides; first antennal joints long, incrassate and with long, dense hairs; third antennal joints not excavate on inner side apically, the style terminal; wings with dark spots on cross veins; only two submarginal cells present; second vein originating very near base of third and much recurved at its end; first posterior cell acute apically, closed and stalked; first main vein and halteres without scales above; tergite 2 shorter, not so characteristically transversely depressed across base; last tergite (sternite) broader, incised gap-like medially in ♂♂; tarsi normal in both sexes, their claws longer, curved down apically; pulvilli long in both sexes; vestiture denser and finer, in form of denser bristly hairs and bristles on thorax, longer and denser hairs on abdomen and dense hair-like scaling.

Peringueyimyia Bigot (p. 46)

- (b) Occipital region less developed, very much shorter behind tubercle and on sides behind eyes, its central sulcation very much shorter, broader and gap-like and ocellar tubercle distinctly marked off from occipital lobes by a suture; eyes in ♂♂ distinctly separated

above in front of tubercle; frons in both sexes much broader, more convex; facial part in both sexes almost or entirely smooth, yellowish or ivory yellowish; first and second antennal joints very short and with very sparse and short hairs on first; third antennal joints obliquely excavated on inner side apically; wings usually fenestrated, with subopaquely whitish areas on cross veins and at bases of posterior cells on a dark background; three submarginal cells present; second vein originating at right angles far from base of third and less recurved at its end; first posterior cell broadly open; base of first main vein and halteres with distinct scaling above; tergite 2 distinctly longer and more transversely depressed basally; last sternite in ♂♂ not incised gap-like medially; tarsi with joints 3-5 in ♂♂ modified below, joint 3 padded below and 4 and 5 somewhat excavated and padded; claws shorter, less curved; pulvilli confined to base of claws; vestiture in form of dense, more broadish scaling, arranged on abdomen in a pattern of whitish spots and transverse bands and sparser bristles. . . 49

49. (a) Marginal cell in wings divided by cross veins (usually two) into a number of apartments (usually three); facial part with a denser patch of bristly hairs on each side of upper part of buccal cavity. *Henica* Macq. (p. 27)
- (b) Marginal cell not divided into apartments by cross veins; facial part usually without any or with less numerous hairs on side of upper part of buccal cavity. *Nomalonia* Rond. (p. 33)
50. (a) Face only (or the facial region composed of front part of frons and the face) markedly and characteristically conically produced, well-marked-off or very prominently snout-like. 51 (*Tomomyzinae*) (p. 50)
- (b) Face, though sometimes slightly convex or slightly subconical in profile, never markedly or characteristically and conically produced or well-marked-off and prominently snout-like. 58 (*Lomatiinae*) (p. 143)
51. (a) Medial anterior part of frons roundly boss-like or tumidly bulging; antennae inserted in a deep transverse depression formed between frontal tubercle and conically produced facial part; hind margin of eyes distinctly indented and with a faint, abbreviated, bisecting line; interocular space on vertex about equally broad in both sexes, about as broad as ocellar tubercle; third antennal joints more rapidly broadened knob-like basally, thus more bulb- or onion-shaped at base, the rest rod-like; three submarginal cells present in wings; second vein originating very close to base of third, its apical part not curved forwardly before the end and latter less recurved; third posterior cell markedly narrower apically than basally; abdomen with a characteristic Syrphid-like colour pattern of black discal or dorsal patches and yellowish or orange yellowish lateral markings or spots; last tergite in ♀♀ with a distinct genital appendage on each side. *Antonia*-group (*Antonia* Lw.) (p. 134)
- (b) Medial anterior part of frons not so roundly boss-like or tumidly bulging; antennae not inserted in a deep transverse depression between a boss-like bulge and a raised conical facial part; hind margin of eyes only slightly sinuous and, if emarginate or subangularly indented, without a bisecting line; interocular space on vertex in ♂♂ distinctly and obviously much narrower than in ♀♀; third antennal joints, though sometimes broadened basally, usually less rapidly so and not onion-shaped at base; wings normally with only two, rarely with three, submarginal cells; second vein rarely originating very close to base of third, usually with a distinct and characteristic forward bend or kink near its apex; third posterior cell not markedly narrower apically than basally; abdomen without a Syrphid-like colour pattern of black and yellow markings; last tergite in ♀♀ without a genital appendage on each side. . . 52
52. (a) Anterior apical part of frons more tumidly prominent and forming a part of the conical and characteristic facial cone; antennae inserted in distinct sockets or fossae; joint 3 shortish, broad, ovoid or elliptical; joint 1 not cup-like and not lodging joint 2 in it; ocellar tubercle elongated, raised or ridge-like longitudinally, the front ocellus far forward; occiput distinctly longer, its central channel or sulcation beginning in a distinct or conspicuous foveate depression; integument of body, especially thorax and abdomen above, distinctly or more conspicuously punctured or sculptured and sides of tergites sometimes foveately depressed on each side; vestiture in form of decumbent, pile-like scaling and inconspicuous hairs, no distinct bristles being present; a meta-

notal tuft wanting; apical part of second vein in wings very much recurved, the sinuosity very deep; femora without any spines below; tibiae without any or with minute and insignificant spicules and spurs. . . . 53 (*Tomomyza*-group) (p. 50)

- (b) Conical facial part formed by face alone, the anterior or apical part of frons not forming part of this facial cone; antennae not inserted in prominent fossae; joint 3 usually knob- or bulb-like at base and tapering apically; joint 1 broad, cup-like and lodging the narrower, more transverse joint 2 in it; ocellar tubercle not elongated, not ridge-like and front ocellus not so far forward; occiput relatively very much shorter, its central sulcation not beginning in a well-defined foveate depression; integument of body above not characteristically punctured or sculptured and tergites not foveately depressed on each side; vestiture in form of distinct and much denser scaling above and on pleurae, hairs, and also distinct prealar, postalar and scutellar bristles; a metanotal tuft present; apical part of second vein not so deeply recurved; femora always with some, even if only small, spines on at least hind ones; tibiae with distinct spicules and longish spurs on middle and hind ones. . . . 54 (*Plesiocera*-group) (p. 94)
53. (a) Abdomen cylindrical, more convex, curved and humped in appearance, usually with a distinct, sometimes deep, preapical, foveate depression on each side of tergites 2-4 (or 5), its integument distinctly and coarsely punctured, usually sparsely and coarsely in apical parts and scabrously or rasp-like basally on sides; body and legs predominantly reddish brown; decumbent pile or scaling on abdomen gleaming brilliantly silvery whitish, metallic brassy yellowish or golden and chequered in appearance; face markedly short; anterior part of frons always longer, forming a much greater part of conically produced facial cone, its outer apical angles usually more prominent or produced; antennae always inserted much farther forward at apex of conically produced facial part; ocellar region distinctly more raised boss-like or humped and conspicuously ridge-like in both sexes, more so in ♂♂, and this ridge usually separated from inner margin of eyes on each side by a groove-like depression. . . . *Pantostomus* Bezz. (p. 51)
- (b) Abdomen, even if convex, distinctly less humped in appearance, sometimes more laterally compressed or sometimes broad and somewhat flattened, without any or with only very small, shallow or scarcely discernible foveate depressions on each side of middle tergites, its integument covered with fine setiferous punctures or with more uniform coarse puncturation; body and legs predominantly black and, if legs are yellowish or brownish in part, they have more black; fine decumbent scaling or hairs on abdomen either predominantly black or, if whitish or silvery, not chequered in appearance; face usually distinctly longer, rarely very short and, if so, abdomen is not humped, centrally ridged or with deep foveate depressions; anterior part of frons shorter, forming part of the conically produced facial cone to a very much lesser extent, its outer apical angles, bounding antennal fossae, less prominent, usually not produced and, if angularly prominent, face is longer; antennae inserted much farther back, rarely near apex of face; ocellar region only slightly raised, never high or humped. . . . *Tomomyza* Wied. (p. 70)
54. (a) Alula in wings very much reduced or vestigial, not lobe-like; axillary lobe narrower, not broadened or lobe-like; hind margin of eyes not distinctly angularly or subangularly emarginate; facial cone usually more conically prominent or produced, its apex more conically or sharply pointed. . . . 55
- (b) Alula distinctly broader, more developed and distinctly more lobe-like; axillary lobe also distinctly broader, more lobe-like; hind margin of eyes more distinctly and more conspicuously subangularly emarginate; facial cone tending to be more rounded or tumid and not sharply pointed apically. . . . 57
55. (a) Wings usually entirely vitreous or glassy hyaline; base of second vein rarely or not bent at right angles to third and not with a basally directed stump at this angle; costal cell shorter, not or scarcely extending to opposite forward bend in second vein; antennal joint 1 cup-shaped, but not markedly broad; joint 3 more club-shaped, more gradually narrowed apically; vestiture with the hairs much shorter, sparser and usually less conspicuous and those on abdomen and across hind margins of tergites very much shorter, with the scales above usually broader, flatter, more lanceolate,

not very fine and pile-like; femora without any distinct spines on front and middle ones; front tarsi relatively longer relative to tibiae, especially in ♂♂, and usually as long as or distinctly longer than tibiae; front claws rarely not markedly reduced or vestigial and, if not much reduced, other characters do not differ. 56

- (b) Wings with the extreme base, costal cell and basal half of first basal cell and in ♀♀ even entire basal cell and bases of marginal and first submarginal cells slightly, but distinctly, infuscated; base of second vein rapidly bent down at right angles to third and with a distinct basally directed stump at this angle; costal cell distinctly longer, extending beyond or slightly beyond forward bend in second vein; antennal joint 1 (text-fig. 31, a) markedly broad and cup-shaped; joint 3 more rapidly narrowed apically, distinctly more bulb-shaped at base; vestiture with the hairs distinctly longer, more conspicuous and those on abdomen and across hind margins of tergites longer, more conspicuous, giving the abdomen a more hairy appearance, with the scales above much finer, more hair-like or pile-like; all the femora with spines below, especially in ♀♀; front tarsi distinctly shorter relative to tibiae and shorter than latter in both sexes; front claws scarcely or only slightly shorter than middle ones.

Coryprosopa n. gen. (p. 118)

56. (a) Occiput distinctly longer behind ocellar tubercle, its central gap or sulcation deeper and narrower, the two lobes almost touching apically and space between them narrower than ocellar tubercle; scales on body above distinctly broader, flatter, more lanceolate and individual ones in a band on each side of thorax broader, more conspicuous and usually evident as a conspicuous, pale, ochreous or cretaceous white band; front tibiae without any visible spicules and spurs; tarsi, especially front ones, at least as long as or longer than tibiae in both sexes, usually much longer in ♂♂ and in some ♀♀, without distinct spinules on front ones below; front claws rarely not markedly reduced or vestigial. *Plesiocera* Macq. (p. 96)

- (b) Occiput distinctly very much shorter behind ocellar tubercle, its central sulcation much broader, wider and more gap-like, the two lobes not touching apically and space between them as broad as tubercle; scales on body above distinctly finer and more hair-like, the individual ones on sides of thorax, even if denser than on disc, not conspicuously broader and not forming a white band; front tibiae with distinct, though minute, spicules and spurs; tarsi, especially front ones in ♀♀, tending to be distinctly shorter than tibiae, with distinct spinules on front ones below; front claws scarcely much smaller than middle ones, not vestigial. *Conomyza* n. gen. (p. 114)

57. (a) Hind margin of eyes (text-fig. 32, a) only slightly, but distinctly, emarginate; scutellum with its hind margin normally rounded or subangulately rounded; femora with more numerous spines below, even on front ones, especially in ♀♀.

Prorostoma n. gen. (p. 121)

- (b) Hind margin of eyes (text-fig. 32, b) more distinctly and more deeply subangulately emarginate; scutellum either with a characteristic bilobate or incised hind margin or with a distinct indication of such an indentation, the hind margin tending to be tumid and to form two shining lobes; femora with fewer spines below and the front ones usually unarmed in both sexes. *Epacmoides* n. gen. (p. 125)

58. (a) Wings with only two submarginal cells, the membrane smooth or only feebly or slightly wrinkled; first posterior cell usually less acutely narrowed apically, more often open, rarely closed and stalked and, if so, only two submarginal cells are present; inner margins of eyes in front of ocellar tubercle separated to a variable extent in both sexes, the space usually narrower or much narrower in ♂♂; terminal joint of antennal joint 3 small, shortish or thickened and with a shortish style; abdomen usually broader, more or less flattened in both sexes; genital brush in ♀♀, if visible, not terminal; vestiture with the hairs and bristly hairs on body very much denser, the body thus more hairy and the bristly elements finer or more normal, with the scales above finer, more hair-like and those on pleurae poorly developed or absent; spines on femora, or on hind ones, below shorter or normal and the spicules and apical spurs on tibiae normally long. 59

- (b) Wings with three submarginal cells, the membrane more strongly and conspicuously wrinkled in appearance; first posterior cell more acutely narrowed apically and some-

times stalked; inner margins of eyes in ♂♂ in contact for some distance in front of ocellar tubercle and in ♀♀ usually separated on vertex by more than twice distance between outer margins of posterior ocelli; terminal joint of antennal joint 3 long, slender and with a longish style; abdomen narrower, cylindrical in ♂♂, the sides of tergites much flexed in below and in ♀♀ more pointed apically; genital brush in ♀♀ terminal; vestiture with the hairs and bristly elements relatively much sparser, the body less hairy in appearance, but the bristles on abdomen very often very strongly and conspicuously developed, with the scales broader, more lanceolate and those on pleurae, coxae and venter more densely developed; spines on femora, especially hind ones and more especially in ♂♂, abnormally long, slender and bristle-like, the basal ones the longest, and with the spicules in outer lower row on tibiae as well as apical spurs abnormally and strikingly long, slender and bristle-like.

63 (*Pteraulax*-group) (p. 332)

59. (a) Second vein in wings without a characteristic forward bend near its apex and originating more or less acutely proximally near base of third; middle cross vein always distinctly or much beyond middle of discoidal cell; costal cell much shorter; indentation in hind margin of eyes without a bisecting line; antennae with a dense and conspicuous tuft or brush of hairs on joints 1 and 2 below; joint 3 broadened club-like, bulb-like or golf-driver-club-like at base, the slender part usually less markedly slender, terminating in a scarcely discernible fine style; hairs on body denser and more shaggy, those on sides of abdomen very dense, shaggy and in form of dense tufts; a distinct metanotal tuft present; abdomen broad and flattened.

Lomatia-group (*Lomatia* Macq.) (p. 144)

- (b) Second vein with a distinct forward bend or kink near its end and originating either obtusely more or less midway between base of third vein and middle cross vein or much nearer the latter, or acutely nearer base of former; middle cross vein at about, or more usually before, middle of discoidal cell; costal cell distinctly much longer; indentation in hind margin of eyes with a distinct, though sometimes faint, short, bisecting line; antennae with only normally dense hairs and no dense tuft on joints 1 and 2 below; joint 3 either very rapidly broadened onion-like at base and with the rest very slender, or more conical and only gradually broadened basally, but in both cases terminating in a distinct small joint bearing a fine style or even a few fine hairs as well; hair on body comparatively less dense, less shaggy, and that on sides of abdomen not in form of dense tufts; a metanotal tuft absent; abdomen usually more elongate, not markedly flattened. 60
60. (a) Wings comparatively narrower, with the alula and axillary lobe narrower; second vein originating near base of third or more obtusely about midway or near middle between base of third vein and middle cross vein; discoidal cell longer and narrower; middle cross vein only a little before middle of discoidal cell; frons narrower just behind antennae and usually slightly longitudinally impressed in front of ocellar tubercle in ♀♀; buccal cavity or space between eyes below much broader; spines on femora and spicules on tibiae longer, more conspicuous.

61 (*Aphoebantus* and *Petrorossia*-group) (p. 309)

- (b) Wings distinctly broader, with the alula and axillary lobe distinctly broader lobe-like; second vein originating almost at right angles very near middle cross vein; discoidal cell shorter and broader; middle cross vein much before middle of discoidal cell; frons very broad just behind antennae and in ♀♀ not or scarcely impressed in front of tubercle; buccal cavity or space between eyes below comparatively very narrow; spines on femora and spicules on tibiae shorter and inconspicuous.

Chionamoeba-group (*Chionamoeba* Sack, in part) (p. 351, 352)

61. (a) Third antennal joints conical or pyriform, only gradually and less rapidly broadened basally, the base not onion-shaped and the terminal joint bearing a style only; second vein in wings originating at an acute angle nearer base of third; vestiture on body denser, composed of fairly dense hair and dense scaling; hind margin of scutellum often shining. 62
- (b) Third antennal joints in form of a broadened onion-like base and a slender apical part, ending in a small terminal joint bearing a fine style and also a crown of a few hairs;

second vein originating obtusely more or less midway between base of third vein and middle cross vein; vestiture apparently slightly less dense, composed of sparser hairs and fairly dense hair-like scaling; hind margin of scutellum dull.

Petrorossia Bezz. (p. 309)

62. (a) First posterior cell open; terminal style-bearing joint of third antennal joint minute and scarcely discernible. *Aphoebantus* Lw. s. str. (p. 312)
- (b) First posterior cell closed; terminal style-bearing joint of antennal joint 3 rather long and conspicuous. *Cononedys* Herm. subgen. of *Aphoebantus* Lw. (p. 335)
63. (a) First posterior cell in wings sharply and acutely closed apically and provided with a short stalk; squamae large, broad and auriform; face (in profile) only slightly convex or subtumid, the hairs on it equally dense or distributed all over its surface, not confined to an apical brush; antennal joint 1 longer, not cup-shaped; antennal joint 3 distinctly more rapidly broadened basally, the base thus more leek-like, bulb- or even onion-like; vestiture on frons, face and antennae longer and denser, in form of erect bristly hairs, and with the bristly hairs across hind margins of tergites usually well developed, especially in ♀♀. *Pteraulax* Bezz. (p. 333)
- (b) First posterior cell open apically; squamae not markedly developed; face (in profile) more subconically prominent, the apical part of buccal cavity deep and apical part of face appearing to project over it due to presence of a conspicuous brush or dense tuft of bristly hairs across apex of face, the rest of facial surface without longish hairs; antennal joint 1 distinctly shorter, cup-shaped; antennal joint 3 more gradually broadened basally, more conical, the base thus not so obviously bulb- or club-like; vestiture on frons in form of shortish hairs, shorter and very much sparser ones on antennae and only very short and sparse pile on face, the greater part of latter and the frons being densely covered with flattened scales, and with the bristly hairs across hind margins of tergites short, more feebly developed. *Pteraulacodes* n. gen. (p. 348)
64. (a) Antennae on the whole closer together, space between them usually not more than a third or fourth distance between the eyes at same level; terminal joint of third antennal joints with a distinct circlet or pencil of fine hairs in addition to the style at its apex and with the third joints themselves usually much more rapidly broadened basally into a bulb- or onion-like or even discus-like base; face always rounded or only feebly convex, not subconically prominent or conically produced apically; metapleurae bare; wings usually with only two, rarely three, submarginal cells; alula and squamae fringed with hairs; front tibiae usually not much reduced, less modified and with well-developed spicules; pulvilli present; ovipositor in ♀♀ with a tuft or brush of hairs. 65 (*Anthracinae*) (p. 356)
- (b) Antennae on the whole wider apart, space between them usually much more than a third or fourth of distance between the eyes at same level; terminal joint of third antennal joints (if discernible or obviously present) ending only in a style or stylet and without a circlet of fine hairs, and the third joints themselves usually more conical or at least less rapidly broadened bulb-like at base and, if bulb-like, a circlet of hairs not present; face more often subconically or conically prominent or produced and, if not, other characters do not differ; metapleurae with a distinct tuft or at least with some hairs; wings more often with three or sometimes even four submarginal cells, rarely with only two and in that case the other characters do not differ; alula and squamae fringed with scales or hair-like scales, rarely with hairs; front tibiae more reduced or modified and either without spicules or with these very much reduced or present only along lower part; pulvilli usually absent, rarely present; ovopositor in ♀♀ with a series (or a half-circlet) of spines or hooks on each side. 68 (*Exoprosopinae*) (p. 465)
65. (a) Body without or with much fewer stoutish bristles, the prealar and postalar ones comparatively feebly developed, without any stoutish bristles in mesopleural tuft or strong bristly hairs or bristles across hind margin of scutellum and across hind margins of tergites, all these, if present, being much feebler and shorter; sides of abdomen without conspicuous tufts of long, bristly hairs or long scales; hairs on frons and face much shorter and entirely pale, whitish or yellowish and those on rest of body above and below entirely or predominantly pale; pale scales on abdomen above not broad

and flattened and not arranged as conspicuous white or silvery ones across tergites or as extensive and conspicuous patches on sides of last two or three segments; head distinctly broader than thorax; frons anteriorly or face discally more tumidly prominent and the latter without a well-defined bare space below antennae; third antennal joints ending in a small terminal joint bearing a small style and only a few hairs or a crown of minute hairs; scutellum distinctly more pointed apically; spines and spicules on legs, especially spurs on tibiae, less strongly developed; wings usually glassy hyaline, without any spots or infuscations and without any stumps at base of either second vein or upper cubital branch. 66

- (b) Body with the bristly elements and stoutish bristles strongly developed, the prealar, postalar and scutellar bristles strong and conspicuous, with stoutish bristles in meso; pleural tuft and with longish and sometimes strong ones across hind margins of tergites-sides of abdomen with conspicuous and dense tufts of long, bristly hairs or hairs and scales; hairs on head in front longer and usually mainly dark or black, those on frons black and those on rest of body above predominantly dark or black; scales on abdomen above in form of broadish, flattened, wedge-shaped, cuneiform or lanceolate, white ones arranged across hind margins of tergites, especially sides, and in ♂♂ as very dense and conspicuous white or silvery ones on last two or three tergites; head scarcely or not broader than thorax; frons or face not so tumidly prominent and the face always with a bare space discally below antennae; terminal joint of third antennal joints of variable length, usually conspicuous and always with a conspicuous crown of relatively longish hairs hiding the short style if present; scutellum usually more rounded posteriorly; spines and spicules on legs, especially spurs on tibiae, distinctly more strongly developed; wings usually with some infuscation in the form of spots on at least some of the cross veins or with the base and costal part infused to a variable extent, rarely entirely hyaline and rarely without a stump on either base of second vein or that of upper cubital branch. 67

66. (a) Head in front just above antennae more tumidly prominent in profile; front margin of face more rim-like prominent; frons without a central basal groove in ♀♀; interocular space on vertex in ♂♂ narrower, only about as wide as or only a little wider than ocellar tubercle; terminal joint of antennal joint 3 ending in a distinct style and without or with only a few inconspicuous hairs; indentation in hind margin of eyes with only an indication of a bisecting line; body and abdomen more elongate; legs more slender, the spines and spicules small and poorly developed; apical spurs of hind tibiae much shorter and feebler; hair on head in front much shorter, entirely or mainly silvery whitish and integument of these parts with brilliant silvery tomentum; plumula feebly developed or almost absent; prealar and postalar bristles feeble and short; basal comb of wings absent or very vestigial; second vein with a more distinct forward bend near its apex. *Chionamoeba* Sack (in part) (p. 352)

- (b) Head in front above antennae not tumidly prominent; face discally more convex or subtumid; frons in ♀♀ with a central groove-like depression basally; interocular space on vertex in ♂♂ broader, quite or nearly twice width of ocellar tubercle; small terminal joint of antennal joint 3 blunter and with a distinct crown of short, fine hairs; the bisecting line in eyes distinctly longer; body and abdomen broader, not elongate; legs stouter, with stronger spines and spicules; apical spurs of middle and hind tibiae distinctly stronger and longer; hair on head in front much longer, not entirely silvery, more yellowish, and the integument with only feeble or obscure silvery or brassy tomentum; plumula normally developed; prealar and postalar bristles stronger and longer; basal comb fine, but distinct; second vein with a feebler forward bend in apical part. *Xeramoeba* n. gen. (p. 356)

67. (a) Vestiture with the bristly elements less dense and scaling on body also less dense, the vestiture on sides of abdomen in form of dense, longish hairs, bristly hairs or bristles and those on sides of tergites 2-4 black or dark and, if pale, without any long, flattened, scale-like hairs; white scales posteriorly on abdomen, if present, more often gleaming pearly white or shining silvery white, especially in ♂♂; antennae (text-fig. 133) with joint 2 lens-shaped, disc-shaped, barrel-shaped or subglobular, with the bulb-like or discoidal base of joint 3 not closely fitting ball and socket-like into concavity of 2, but

with the latter joined on to joint 3 by a short peduncle; claws in ♂♂ usually not or scarcely longer than in ♀♀. *Anthrax* Scop. (p. 359)

- (b) Vestiture with the bristly elements usually more dense and scaling much denser, the vestiture on sides of tergites 2-5 in form of bristly hairs and black and white tufts of long, flattened, lanceolate or strap-like scales or scale-like hairs, those on sides of 2 and 4 usually black; white scales posteriorly on abdomen duller, more cretaceous or chalky white; antennae (text-fig. 134) with joint 2 very much more flattened, saucer-shaped, bowl-shaped, very concave apically, usually slightly broader across its apical rim, with the bulb- or onion-shaped basal part of joint 3 fitting closely into it like a ball in a socket and with no visible peduncle-like part of joint 2 being apparent; claws in ♂♂ distinctly longer than in ♀♀. *Argyramoeba* Schin. (p. 364)

68. (a) Hind margin of eyes without any distinct or visible indication of a bisecting line extending forwards from indentation; frons with a more distinct transverse or foveate depression at about middle, especially in ♀♀; occiput relatively short, the gap wider and the lobes more separated; pulvilli well developed; spicules in outer upper row on hind tibiae not markedly or conspicuously dense, much fewer; second vein in wings originating quite a little distance before middle cross vein, sometimes at a point quite the length of latter; alula and squamae fringed with hair-like scales or hairs; scaling on body entirely fine and hair-like, almost indistinguishable from depressed hairs.

Synthesia Bezz. (p. 466)

- (b) Hind margin of eyes with a distinctly discernible, even if short or obscure, bisecting line or an indication of one extending from indentation; frons without any depression or, if a slight one is indicated, it is longitudinal and not transverse; occiput relatively longer, its gap narrower, with the lobes almost touching or contiguous; pulvilli usually wanting, very rarely present; spicules in outer upper row on hind tibiae usually more numerous and markedly denser than the rest; second vein originating much nearer or opposite middle cross vein; alula and squamae usually with broader scale-like hairs or scales and, if fine and hair-like, other characters do not differ; scaling on body not entirely fine and hair-like, some being broadish and flattened. 69

69. (a) Third antennal joints distinctly more club-shaped, the broad base more bulb- or onion-shaped, more marked off from the slender part which ends only in a fine stylet and not in a two-jointed stylar part or in a terminal joint bearing a style; face not prominently projecting cone-like or snout-like, usually rounded or at most only roundly convex or slightly tumid; wings with only two submarginal cells, usually entirely or mainly hyaline, rarely with a pattern; front tibiae with some distinct spicules, even if only along lower surface; claws without a distinct basal tooth or at most with only a small and obtuse tubercle; ocellar tubercle tending to be situated more posteriorly, nearer to vertex. 70

- (b) Third antennal joints more conical or in form of an elongated cone, tapering more gradually from broad base and ending apically in a terminal joint-like element bearing a fine stylet or in a two-jointed style of variable length, rarely without these; face distinctly more prominently projecting cone-like or snout-like or at least conspicuously prominent and, if not, proboscis projects beyond buccal cavity and third antennal joints are conical; wings more often with three submarginal cells or even four and more often infuscated, spotted to a variable extent or with an extensive pattern and, if with only two submarginal cells or entirely hyaline, face at least is conical or snout-like; front tibiae in most cases without distinct spicules, rarely spiculate; claws rarely without a distinct and sharp basal tooth; ocellar tubercle usually situated farther forward. 73

70. (a) Mouth parts normally developed, the buccal cavity, proboscis and palps not markedly reduced or vestigial; face shorter, much shorter than frons, not prominently and conspicuously roundly convex or tumid; eyes longer (broader) at level of antennae, less reniform and with a more distinct indication of a bisecting line; occiput relatively longer; anal cell more widely open, less narrowed apically; legs on the whole relatively longer; spines on middle and hind femora, especially latter, usually distinct or well developed; front tibiae with only a few small spicules, mostly on lower surface; front tarsi more modified and hairy; prealar, postalar and scutellar bristles and bristly

hairs across hind margins of tergites distinctly more developed, stronger, stouter and longer; scales on sides of abdomen more often long and conspicuous and usually with longish feathery ones on hind tibiae; integument of body mainly dark or black, with less yellowish or reddish. *Villa Lioy* (p. 469)

- (b) Mouth parts abnormally and much reduced or vestigial, the buccal cavity much reduced or even slit-like and proboscis and palps small, rudimentary or even wanting; face longer, as long as or only a little shorter than frons, prominently roundly convex or tumid and very broad; eyes more reniform, shorter at level of antennae and with a less distinct indication of a bisecting line; occiput relatively shorter or very short; anal cell tending to be more narrowed apically or even sometimes to be closed; legs distinctly shorter or markedly shortish; femora without distinct spines below or only with short, spine-like hairs; front tibiae with distinctly more numerous spicules over the upper and lateral surfaces; front tarsi less modified or at least not more hairy than the others; thoracic and scutellar bristles and bristly hairs on abdomen entirely absent or very short or poorly developed; scales on sides of abdomen not conspicuously developed and without longish feathery scales on hind tibiae; integument with more or much yellowish brownish, reddish or castaneous brownish and the black less developed or less conspicuous. 71

71. (a) Head smaller, narrower, distinctly or much narrower than across disc of thorax at level of wings; indentation in hind margin of eyes slightly deeper; antennal joint 3 with the broad base bulb- or onion-shaped, but relatively smaller, narrower or not much broader than joint 2, its slender part very slender, rod-like or styliform or even filiform and relatively much longer, much longer than length of bulbular base; mesopleuron, though prominent, tending to be less convexly bulging; third posterior cell in wings distinctly very much shorter, its base characteristically only a little way before middle of vein separating it from fourth posterior cell and usually with a short stump or a vestige of one projecting into discoidal cell from this base; second vein more recurved apically and with an indication of a stump basally; basal part of discoidal cell before the constriction much larger, only a little smaller and shorter than apical part; second submarginal and second and third posterior cells shorter; legs on the whole distinctly longer, more slender; front and middle femora with only sparse fine hairs on lower hinder part and hind ones with some short spines or spine-like hairs below; front tibiae with fewer spicules; tarsi distinctly or much shorter than tibiae, the basal joint of front ones not markedly thickened; scaling on pleurae and coxae, especially front ones, broader, more flattened, not finely hair-like; hairs on tergites 1 and 2 and basal part of venter and also on front coxae less dense, sparser and shorter. *Oestranthrax* Bezz. (p. 509)

- (b) Head distinctly much larger, broader, nearly or quite as broad as (or even slightly broader than) disc of thorax at level of wings; indentation in hind margin of eyes shallower, scarcely distinct; antennal joint 3 with the broad base larger, more ovate or ham-shaped and considerably broader than joint 2, more gradually narrowed, its more slender apical part much stouter and thicker, subequal in length to or only slightly longer than broad base; mesopleuron tending to be more convexly bulging; third posterior cell distinctly much longer, its base very much nearer apex of second basal cell and more often without a stump; second vein less recurved apically and without a stump at base; basal part of discoidal cell before constriction distinctly very much smaller and shorter than broad apical part; second submarginal and second and third, and even fourth, posterior cells usually distinctly longer; legs distinctly shorter and stouter; front and middle femora with long or longer, dense and shaggy hairs on lower and hinder parts and all the femora without any spines; front tibiae with denser spicules; tarsi, especially front and middle ones, about as long as or scarcely shorter than tibiae, the basal joint of front ones distinctly thickened; scaling on pleurae and coxae fine, hair-like; hairs on tergites 1 and 2 and base of venter and also on front coxae distinctly very much denser and longer or very much longer. 72

72. (a) Mouth parts very much and abnormally reduced, the buccal cavity only represented by a longitudinal slit and the proboscis and palps entirely absent or a mere vestige of the former protrudes through the slit in form of a minute, scale-like process; antennal

joint 1 much shorter, less thickened, with shorter and less dense hairs; hairs on face and body above and below distinctly shorter and less shaggy, those on pleurae, tergites 1 and 2, sides of abdomen, venter (especially base) and on front and middle femora not conspicuously long and shaggy; sides of abdomen and greater part of venter with only shortish, sparse hairs and dense scales; base of tergite 2 (sides only in ♂♂ and rest of tergite in ♀♀) with a broadish band of pale or white scaling in addition to hairs; mesopleuron slightly less convexly boss-like; posterior more membranous part of squamae about or only a little shorter than the more leathery and opaque basal part or half; wings in known species with a broad band-like infuscation of variable extent across middle either in both sexes or only in ♀♀, the ♂♂ in latter case having only costal part infuscated; basal hook of wings shorter, more triangular, more broadened at base.

Villoestrus Par. (p. 517)

- (b) Mouth parts, though much reduced, still present and even slightly less reduced than in *Oestranthrax*, the buccal cavity broadly visible, not slit-like, the proboscis more distinct, subequal in length to antennal joint 3, having a distinct, pointed, labellar part, and palps distinctly discernible; antennal joint 1 distinctly longer and thickened, with distinctly longer and denser hairs; hairs and scales on face much longer and denser, and hairs on body above and below distinctly much longer, denser and more bushy or shaggy, those on pleurae, tergites 1 and 2, sides of abdomen, base of venter and on front and middle femora longer, denser and more shaggy; sides of abdomen and venter with much denser and longer hairs in addition to the scales; base of tergite 2 without conspicuous whitish scaling, such being present across bases of other tergites; mesopleuron slightly more convexly bulging; posterior more membranous part of squamae distinctly very much shorter than more leathery basal part; wings in genotype-species more hyaline, without band-like infuscation across middle, even in ♂♂; basal hook much longer, narrower, more prong-like. . . . *Marleyimyia* n. gen. (p. 521)

73. (a) Claws without a basal hook or at most with a small and obtuse tubercle; wings usually with only two submarginal cells and, if rarely with three, claws are without a basal hook; antennal joint 3 with the broad base more often tending to be more rapidly marked off or more bulging or dilated below at least, the joint thus less gradually tapering and not in form of an elongated cone, ending apically in either a two-jointed style (terminal joint and style) or sometimes in only a stylet, the basal or terminal joint in case of former being usually very much shorter than slender part of joint itself and, if very much longer as in a few forms, other characters conform.

Thyridanthrax Ost. Sack. (p. 524)

- (b) Claws usually with a distinct, well-developed, basal tooth; wings always with three or sometimes even with four submarginal cells; antennal joint 3 in form of an elongated cone, ending apically either in a well-marked-off two-jointed style (terminal joint and style), the basal or first one of which is sometimes very long, or joint ends in a distinct and separately discernible style or stylet and, if not, claws at least have a basal tooth. . . . 74

74. (a) Anterior tarsi always distinctly more or less modified in both sexes, either finely or densely hairy or sometimes even with dense, spine-like hairs; anterior claws more usually much reduced, considerably smaller than rest, rarely not reduced; basal tooth of claws more developed, stouter, blunt or sharp; middle and hind femora rarely without well-developed spines and, if without, other characters do not differ; spicules and spurs on at least middle and hind tibiae well developed, long and often dense; face more often conical or sharply conical, only occasionally more roundly convex; genal furrows less distinct and less deep; occiput relatively shorter, usually less sloping and usually foveately or more distinctly depressed anteriorly behind vertex; thorax relatively shorter relative to scutellum and rarely without distinct, long and well-developed bristles; head and body not entirely or predominantly reddish and, if mainly so, other characters do not differ. . . . 75

- (b) Anterior tarsi not distinctly modified, not densely hairy; anterior claws not markedly reduced, scarcely much smaller than rest; basal tooth of claws very small, in form of a short spine; middle and hind femora with the spines much reduced, very short; face broad, subtumidly rounded and not sharply conical or merely rounded; genal furrows well developed, very distinct and deep; occiput relatively longer, more sloping,

not or very feebly depressed anteriorly behind vertex; thorax distinctly longer in relation to scutellum and with very short or much reduced bristles; head and body predominantly red or reddish. . . . *Atrichochira* n. gen. (p. 911)

75. (a) Face conical or more rounded, but even if conical, not distinctly longitudinally depressed or grooved above; palps long, at least as long as or longer than antennae; thorax longer, much more or very much more than twice length of scutellum; wings not or rarely pedunculate; alula and axillary lobe not markedly narrow and reduced; second vein originating at right angles very near or opposite middle cross vein; alula and squamae with a fringe of distinct scales; basal comb more strongly developed; front tibiae without longer, slender, apical spicules or spurs on inner or anterior part. . . . 76
- (b) Face very conical, distinctly grooved or sulcate above; palps short, shorter than antennae; thorax relatively shorter, only a very little longer than twice length of scutellum; wings distinctly pedunculate; alula and axillary lobe markedly narrow and reduced; second vein originating more obtusely some distance before middle cross vein; alula and squamae with a fringe of hair-like scales or hairs; basal comb more reduced; front tibiae with a few long and slender apical spurs on inner anterior part. . . . *Isotamia* Bezz. (= *Francoisia* Hesse = *Ogilviella* Par.) (p. 931)
76. (a) Wings with a very characteristic pattern, consisting of two broad cross bands of yellowish brown, reddish brown or blackish brown which are broadly confluent anteriorly in costal part anterior to discoidal cell, leaving the apical part and an irregularly triangular indentation in middle of hinder half or hinder part clear or hyaline; proboscis long, always longer than buccal cavity, often very much longer than head; face distinctly less conically produced, more roundly convex or subtumid; front tibiae distinctly spiculate, with more spicules which are usually well developed in at least three rows on upper and outer lateral faces apart from fine brush on inner lower part; modified front tarsi with longer, stouter and often denser spine-like hairs; claws with the front ones comparatively less reduced, and basal tooth of all relatively stouter, more compressed; abdomen with a more constant, rounded, or quadrate patch of snow-white or cretaceous white scales on sides of tergite 3 or with a white band across hind margin and also with white scales on last two tergites. . . . *Litorrhynchus* Macq. (p. 621)
- (b) Above combination of characters not all present; wings with different and various patterns or even hyaline and, if with a more or less similar pattern, following characters do not differ; proboscis much shorter, not or scarcely or only a little projecting beyond apex of buccal cavity, rarely longish; face distinctly more sharply conically produced or pointed apically; front tibiae more often non-spiculate and, if with spicules, these are much fewer and usually only on outer part or in fewer rows, only occasionally with numerous spicules; modified front tarsi usually with finer, shorter and less spine-like hairs; front claws usually much or more reduced and basal tooth of all relatively more slender, sharper and more spine-like, rarely stout and compressed; abdomen with different patterns of white or pale scaling, either with transverse bands on most of the tergites or without bands, or with bands differently arranged and, if with a similar pattern, all other characters do not differ. . . . 77
77. (a) Wings with only three submarginal cells, the branches of cubital fork not united by a cross vein. . . . *Exoprosopa* Macq. (p. 654)
- (b) Wings with four submarginal cells, formed either by the branches of cubital fork being united by a cross vein, or by the anterior apical cell (formed by submarginal cross vein dividing first submarginal cell into two) being divided into two by an oblique cross vein (or a cross vein more or less in line with long axis of wings). . . . 78
78. (a) The four submarginal cells formed by the branches of cubital fork being united by a cross vein which extends from very near apex of first posterior cell to angular dip or backward bend of first apical cell; apex of marginal cell not truncated or second vein not sharply bent at right angles at its apex (the marginal cell not appearing as if divided into two by a cross vein); wings usually not maculated or with confluent spots. . . . *Ligyra* Newm. (= *Hyperalonia* Rond. olim) (p. 913)
- (b) The four submarginal cells differently formed (pl. ii, fig. 12), formed by a very oblique cross vein (or a cross vein in line with long axis of wings) dividing the first apical cell

into two, giving the appearance as if a long marginal cell has been divided into two by a cross vein; apex of true marginal cell truncate, due to the apical part of second vein being very sharply bent at right angles; wings extensively maculated and with confluent spots. . . . *Heteralonia* Rond. (subgen. of *Exoprosopa* Macq.) (p. 908)

DIVISION II

Bombyliidae with the occipital region behind eyes distinctly bilobate, with a distinct deep and often long, central, slit-like channel or sulcation, often beginning in a foveate depression, leading into a deep and conspicuous concavity in head behind; hind margin of eyes in most genera and species distinctly indented or subangularly or angularly emarginate, more often also with a faint or distinct, abbreviated, bisecting line extending forwards from indentation; common base of second and third main veins in wings usually long; second vein more often originating at right angles or very nearly so from third vein.

Subfam. CYLLENIINAE

As this subfamily, even in the Palaearctic Region, is composed of very dissimilar elements, it is very difficult to define the subfamily on the characters present in such genera as *Henica*, *Nomalonia*, and *Peringueyimyia*, which have been referred to this subfamily by Bezzi. Judging from descriptions of *Cyllenina* Latr. s. str. given by Engel (p. 10, *Die Fliegen d. Pal. Reg.*, lief. 65 (Bombyliidae), 1932), there is no doubt that the above-named African genera differ in important characters from the Palaearctic representative of the subfamily. Especially is this the case in *Henica* and *Nomalonia*. From *Cyllenina* they differ in not having the interocular space broad in both sexes, in having very short first antennal joints, and third joints which are obliquely truncated or slightly excavated apically, in having the second longitudinal vein originating very far from base of third, in having characteristically fenestrated wings, and the marginal cell sometimes divided into apartments by cross veins, in having tergite 2 long and transversely depressed across base, very conspicuously visible hypopygium in ♂♂, scaled halteres, and characteristically modified tarsal joints 3-5 in ♂♂. The solitary genus *Peringueyimyia* on the other hand has the eyes in ♂♂ contiguous or subcontiguous for a distance above, a more developed occipital region, and an apically acute and stalked first posterior cell in wings. Not having seen and compared Palaearctic genera of *Cyleniinae* with these African genera, it is impossible to state whether they should be included in the subfamily, and though all three are provisionally retained in the *Cyleniinae*, there is a suspicion that *Henica* and *Nomalonia* at least belong to a separate group.

Gen. *Henica* Macq.

(Macquart, p. 399, *Suit. à Buffon*, i, 1834; Macquart, p. 78, *Dipt. Exot.*, ii, 1840; Becker, p. 477, *Ann. Mus. Zool. Acad. Imp. St. Petersb.*, xvii, 1912; Bezzi, p. 109, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 135, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Syn. = *Lagochilus* Loew, p. 201, *Dipt. Faun. Südaf.*, i, 1860.)

(Syn. = *Alonipola* Rondani, p. 71, *Archiv. Zool. Canestr.*, iii, 1863.)

The chief characters of this genus are: *Body* muscoid in appearance. *Vestiture* in form of relatively sparse bristly hairs and bristles and much denser

adpressed scaling, especially on body above and on legs, with the greater part of pleurae, genae and sides of front part of head bare; bristly hairs present on ocellar tubercle, frons, sparsely on antennal joints 1 and 2 above, sparsely on sides of face, more densely on upper parts of occiput and more finely on head behind eyes; those on front part of thorax and on humeral angles denser and longer than very sparse and short ones on disc; those on upper part of mesopleuron dense and brush-like; bristles on sides of thorax in front of wing-bases stoutish and conspicuous; postalar and sparse bristles across base of thorax and also scutellar ones also well developed and stout; tuft at base of abdomen on each side fairly dense, conspicuous; bristles across hind margins of tergite and sternite 7 much longer and more conspicuous than short ones on sides of abdomen; bristly hairs on sternite 1 also long; bristles on coxae well developed; scaling dense on frons and in stripes on thorax above; that on abdomen very dense and with the whitish, greyish, yellowish or brownish and dark ones arranged in a pattern, the whitish ones being concentrated spot-like or densely across hind margins and sides of tergites, as spots along middle above and also across hind margins of sternites or along middle of venter; scaling on pleurae sparse, dense on mesopleuron and on legs. *Head* broad, quite as broad as, or even slightly broader than, thorax; occiput comparatively short behind ocellar tubercle and behind eyes, broadly bilobate, the sulcus broad and gap-like; ocellar tubercle raised and well marked off, especially in ♂♂; interocular space in ♂♂ above much narrower than in ♀♀, in ♂♂ about as broad as ocellar tubercle, but narrower than tubercle just before tubercle; space in ♀♀ about $2\frac{1}{2}$ to 3, or nearly 3, times width of tubercle; frons thus more gradually diverging anteriorly in ♀♀, gradually and arcuately convex in profile in both sexes; buccal cavity prominent, projecting, its rims prominent and the cavity deep, separated from inner margins of eyes on each side by a deep cavity, prolonged lower down into a groove; face above buccal cavity very short and insignificant, separated from lower front part of frons on each side by a shallow, groove-like depression; antennae inserted in a slight depression, the first joints narrowly separated at their bases, very short, scarcely, or only very slightly, longer than joint 2, but broader than 2, with joint 3 elongate, somewhat laterally compressed, broadest towards base, more straight along upper margin, with the apical half or apical third more slender, the apex obliquely truncate on inner side or with a slight excavation, bearing a stylar element, the upper surface of joint 3 usually covered with some scales and a few, inconspicuous, short, bristly hairs at about, or beyond, middle; proboscis straight, tending to be directed obliquely upwards, the labial part dull, due to a finely strigilose sculpture, with sparse and scattered spinules sometimes visible; palps slender, not visibly divided into joints, the apical part, however, broader and more clavate and the sparse hairs along upper apical aspect longer. *Thorax* with the base markedly arcuately emarginate and the demarcation between it and scutellum depressed. *Wings* with the front half at least or even the greater part infuscated, but showing

a fenestrated appearance, due to clear or subopaquely whitish spots on cross veins and at base of cells; basal comb poorly developed; alula narrow, not lobate; axillary lobe also narrow, parallel-sided, not lobate; three submarginal cells present; marginal cell divided into three by two cross veins; second longitudinal vein originating more or less at right angles far from base of third longitudinal vein; four posterior cells present and all open on hind border; middle cross vein very much beyond middle of discoidal cell, the apex of latter broadish and truncate; basal part of first longitudinal vein also scaled above like costal vein; costal cell very long; halteres spatulate, with fairly dense scales on each side, especially above. *Abdomen* with tergite 2 long, transversely depressed across the base; the last sternite somewhat elongate in ♂♂. *Legs* with the bristles on coxae and spicules on tibiae well developed, with at least two rows of bristly spines on femora below, longer and more numerous on hind ones; tarsi with joints 3-5 on all the legs in ♂♂ modified, joint 3 having a pad-like brush of very fine hairs and 4 and 5 appearing more excavated below, but also with pads of fine hairs, and without a conspicuous bristle on each side apically below as on 3; claws only gradually curved, more slender and comparatively longer in ♀♀, with the pulvilli short and confined to bases of claws, more pad-like in ♂♂ and the medial empodium also stouter and thicker in ♂♂. *Hypopygium* of ♂ (text-fig. 1) with the basal parts elongate, not separated into two parts by a dorsal suture, the line of suture being indicated only by a slight longitudinal depression towards apical part, with only very short and scattered fine hairs above and very fine pruinescence, but no long, bristly hairs; beaked apical joints as shown in text-figure, with the apical part more or less flattened and bifid, with a transverse, raised, keel-like ridge above, behind which the dorsum is covered with dense bristly hairs; aedeagus with the slender apical part curved upwards, then broad and tubular for some distance and then appearing very broad and really constituting part of the ventral inner part of basal part, the actual tube of the aedeagus being visible along its centre; middle part of aedeagal complex prominent, inflated, helmet-like and, together with basal part of aedeagus, connected on each side by means of ramus to basal part and also to last sternite, with the ramus on each side continued on inner side of the basally directed projection of basal part as a narrow, strap-like process; lateral struts shortish.

This genus and the following one are peculiar in having tarsal joints 3-5 in the ♂♂ characteristically modified and in having tergite 2 transversely depressed basally in both sexes. In the relatively short occiput which is broadly bilobate, the sulcus being short and gap-like, they also differ from the other genera in the second Division. The non-emarginate and non-bisected eyes also tend to affiliate them with genera in the first Division, but the bilobate occiput and long base of third longitudinal vein are of sufficient importance to place them in the second Division. At present *Henica* s. str. is represented by only one known species which appears to be confined to Southern Africa.

Henica longirostris (Wied.)

(Wiedemann, p. 281, *Aussereurop. Zweifl. Ins.*, i, 1828 (as *Anthrax*); Bezzi, p. 109, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 135, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Syn. = *afra* Wiedemann, p. 358, *Aussereurop. Zweifl. Ins.*, i, pl. v, fig. 2, 1828 (as *Cyllenina*).)

(Syn. = *pluricellata* Macquart, p. 84, *Dipt. Exot., Suppl.* v, tab. 4, fig. 12, 1855 (as *Cyllenina*); Rondani, p. 71, *Archiv. Zool. Canestr.*, iii, 1863 (as *Alonipola*).)

(Syn. = *afer* (Wied.) by Loew, p. 201, *Dipt. Faun. Südafri.*, i, 1860 (as *Lagochilus*).)

As is evident from the references cited above, this species was referred to more than one genus and was also described under different names. The somewhat confused synonymy was cleared up by Bezzi in 1921. What precipitated this confusion was the fact that Wiedemann described two specifically distinct species, belonging to different genera, one as *Anthrax longirostris* (p. 281, loc. cit.) and the other as *Cyllenina longirostris* (p. 358, loc. cit.), and immediately after the latter described another species *Cyllenina afra* (p. 358, loc. cit.), which latter species is without doubt synonymical with *Anthrax longirostris*, but generically and specifically different from his *Cyllenina longirostris*. This last species is most certainly not a *Cyllenina* and according to Bezzi is to be referred to *Adelidea anomala* Wied. as a synonym. Macquart in 1840 and 1855 was the first to fall into the trap by redescribing *Anthrax longirostris* Wied. (= *Cyllenina afra* Wied.) as *Cyllenina pluricellata* (p. 84, loc. cit.) and by describing a new species of a very similar genus (*Nomalonia*) as *Cyllenina afra* Wied. (p. 108, *Dipt. Exot.*, ii, 1840). Loew on the other hand accepted Wiedemann's *Cyllenina afra* as valid, but recognizing that generically it was not a *Cyllenina* created his new genus *Lagochilus* for it. Similarly Rondani in 1863 accepted Macquart's *pluricellata* as a valid species, but referred it to a new genus *Alonipola*. Macquart, however, as early as 1834 (p. 399, *Suit. à Buffon*, i), realizing that *Anthrax longirostris* Wied. was not an *Anthrax*, erected a new genus *Enica* (now written *Henica*) to accommodate it.

The characters of this interesting species are:

Body for the greater part dark or black above; sides of head behind eyes, sides of frons, the entire facial region and buccal cavity and head below ivory whitish, ivory yellowish to straw-coloured yellowish; posterior cavity of head yellowish brownish to orange yellowish, with a variable black spot or blackish infusion on each side of occiput; ocellar tubercle also black or blackish; basal half or greater part of middle of frons, especially in ♀, reddish brownish or even dark brownish, becoming paler anteriorly; eyes very dark brown to blackish brown; proboscis black; antennal joint 1 yellowish, joint 2 sometimes darker or also yellowish and the entire joint 3 dark or blackish, the extreme base, however, sometimes yellowish; sides of thorax in front of wings, sometimes broadly, postalar calli, base of thorax on each side, greater discal part of scutellum,

entire sides of tergite 1, fairly broad hind margins of the rest of the tergites, broader on sides and towards apex of abdomen, especially tergite 7 in ♂, broad hind margins of the sternites and almost or the entire last sternite, hypopygium of ♂ and the entire or greater part of pleurae in both sexes reddish yellow, yellowish brown to almost ochreous yellowish or reddish, the latter colour especially on the pleurae; coxae, greater part of femora below, greater part of the tibiae below and integumentary colour of the tarsi also yellowish, yellowish brownish to even ochreous brownish in both sexes, the upper surfaces of the femora, especially front and middle ones and apical parts above of hind ones, the upper or outer surfaces of the tibiae and often even the entire hind tibiae and the tarsi darkened or appearing dark or blackish, due to dark or blackish gleaming scales; spines, spurs and spicules on legs black, with the rest of the scaling on legs greyish whitish to dull gleaming whitish. *Vestiture* with the fine, erect, bristly hairs in cavity of head behind and on head behind eyes whitish or pale sericeous yellowish, those on dark occipital spots dark or blackish; those on ocellar tubercle and greater part of frons, especially in ♂, also black, the bristly hairs towards front part of frons becoming paler or with intermixed yellowish ones; sparse, shortish hairs on antennal joints 1 and 2 above black, the sparse tuft of hairs on sides of face, those in fossa on each side and the more or less sparse hair on head below whitish or pale sericeous or straw-coloured yellowish; the fairly dense scaling on frons, denser, longer and more conspicuous in ♂, whitish or very pale creamy yellowish; bristly hairs, bristles and macrochaetal bristles on thorax, scutellum and abdomen black, the finer and denser ones on sides of tergite 1 and on sternite 1 basally whitish; brush-like bristles along upper part of mesopleuron black and the tuft just above front coxae whitish or straw-coloured; dense scaling on thorax above arranged in more or less 2 submedial longitudinal stripes of white ones, with a broader stripe on each side of the same scaling or often more greyish scaling, all 4 stripes separated by broader bands of more yellowish brown, ochreous or brownish tinted scales; those basally on scutellum whitish or very faintly tinted creamy to slight ochreous; scaling on abdomen very dense, more or less arranged in a pattern of cretaceous or chalky white scaling, more evident and conspicuous as spots or patches above along middle line and submedially on each side basally on each tergite and across hind margins of tergites, especially on sides of abdomen; scaling on sides of tergite 1 dense and white, with much ochreous yellowish, orange yellowish or yellowish-tinted scales on sides basally and across tergite 2 and transversely across medial parts of the other tergites (not occupied by white ones) where this admixture is, however, sometimes less evident owing to the contrasting spots and apical transverse bands of white scaling; distinct dark brownish or dark graphite-like scales on the sides of the tergites where the white ones are absent and also irregularly and in patches discally on abdomen above where pale ones are absent; scaling on venter white, greyish whitish to faintly yellowish-tinted, that along sides and along centre and often across hind margins of sternites more contrastingly whitish; scaling on pleurae very sparse

and white or whitish like those on coxae. *Wings* smoky or tinged smoky brownish to a variable extent, apparently slightly darker in ♀, with the costal cell beyond cross vein, the basal parts of first and second basal cells, a small spot at base of third longitudinal vein, an elongate oblique band (consisting of 3 coalescent spots) across middle of wing from apical cross vein of second basal cell to rounded spot on origin of second longitudinal vein and six other rounded spots on the cross veins and bases of posterior cells respectively conspicuously sub-opaquely whitish or glassy, with the first, third and fifth longitudinal veins and greater part of the cross veins in the clear spots yellowish, the rest of the venation very dark blackish brown to almost black; base of second longitudinal vein, which arises at almost right angles, sometimes with a distinct appendix; scaling at base of costal vein whitish then blackish; squamae milky whitish; halteres with the apical part of broadened apical part whitish, the rest of knob yellowish, with the scaling on sides of stem gleaming dark blackish brown, becoming finer and more whitish at base. *Head* with the eyes in ♂ above separated by width of ocellar tubercle and at narrowest part a little broader than front ocellus or quite as broad as narrow front part of tubercle; interocular space in ♀ on vertex about $2\frac{1}{2}$ to nearly or even about 3 times as broad as the tubercle; antennae with joint 1 subequal in length or a little longer than 2, with 3 apparently more slender in ♂; proboscis about 3–4 mm. long including the sheathed base. *Hypopygium* of ♂ (text-fig. 1) as described for genus. In the British, Transvaal and South African Museums and in the Commonwealth Institute.

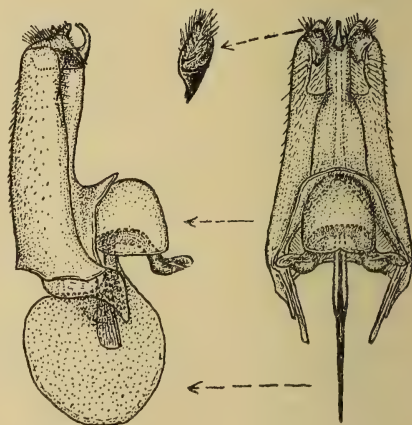
Length of body: about $4\frac{1}{2}$ –11 mm.

Length of wing: about $4\frac{1}{2}$ –9½ mm.

Locality: South-western and southern Cape, west Cape Province, Little Karoo, southern boundary of Great Karoo and Namaqualand.

This species appears to be variable in size, the extent of the yellowish on body and the extent and intensity of the infuscation in the wings. Specimens coming from the extreme southern parts along the coastal belt and within the mountainous area of the Western Province distinctly differ from those from the Olifants River Valley, western Cape, the southern boundary of the Karoo and Nama-

qualand in having almost the entire wings infuscated or tinged smoky, even the hinder parts in ♂ also distinctly tinged and the wings in ♀ even slightly darker, the reddish on sides of thorax in both sexes apparently broader and more extensive and in having most of the scaling on abdomen above, apart from the



TEXT-FIG. 1. Parts of hypopygium of ♂ of *Henica longirostris* Wied.

white spots and transverse bands, darker, more black and gleaming like anthracite. The Namaqualand specimens and those from the west Cape and southern boundary of the Karoo on the other hand have the wings less deeply infuscated, the discoidal and posterior cells of wings in ♂ entirely glassy hyaline or at least tinged very much less and even in ♀ tending to be less tinged, the reddish on sides of thorax apparently narrower and less conspicuous, and more pale, greyish, yellowish, or even ochreous yellowish scales between the white ones on abdomen above.

Gen. *Nomalonia* Rond.

(Rondani, p. 71, *Archiv. Zool. Canestr.*, iii, 1863; Bezzi, p. 106, *Ann. S. Afr. Mus.*, xviii, 1921.)

This genus, which was described by Rondani to contain *Cyllenina afra* Macq. (nec Wiedemann), is structurally almost inseparable from *Henica*, practically differing only in having no cross veins dividing the marginal cell into three apartments as in *Henica*. In most other respects, such as a bare and smoothish facial region, short first and second antennal joints, similarly fenestrated wings and other wing-characters, a basally transversely depressed second tergite, modified tarsal joints 3-5 in ♂♂, gradually curved claws and much reduced pulvilli and even very similar hypopygium, this genus agrees with *Henica*. Another detail which is more usual in species of *Nomalonia* is the entire or almost entire absence of a distinct tuft of bristly hairs on each side of face and buccal cavity. The absence or presence of cross veins in the marginal cell is often such an unstable character that it may hardly be considered as of generic value and, if no great importance be given to these cross veins, *Nomalonia* may quite reasonably be considered as only a subgenus of *Henica*. The ♀♀ of some species of *Nomalonia* even resemble *Henica longirostris* to such an extent that they practically differ only in the absence of cross veins in the marginal cell and may thus be easily mistaken for the latter species. All the species of *Nomalonia*, described in this paper, have the following characters in common: *Body* with the facial region, sides of frons and head behind eyes ivory whitish, ivory yellowish or bone-yellowish; sides of thorax, base of thorax and postalar calli, entire or greater part of scutellum, entire or greater part of pleurae, broadish or very broad hind margins of tergites and sternites, entire sides of tergite 1 and greater part of legs yellowish reddish, yellowish brownish to reddish brown. *Vestiture* with the bristles and bristly hairs on body above similarly disposed in all the species as in *Henica*; dense scaling on abdomen above in form of a row of central white patches or spots and white transverse bands, more conspicuous on sides of tergites, and usually broken up into patches discally across the medial tergites, with brownish or blackish scaling also intermixed above and with dark or blackish scaling to a variable extent on legs above. *Wings* tinged brownish, more so in ♀♀, rarely hyaline in some ♂♂, and with clearer fenestrae similar to those of *Henica*. *Legs* with the tarsi modified in ♂♂ as in those of *Henica*.

Hypopygium of the ♂♂ (text-figs. 2-6) is also very similar to that of *Henica* in some respects; basal parts also fused dorsally, elongate, ending basally on each side in a lobe-like prolongation; beaked apical joints (see figures) excavated or hollowed on the sides towards the lower aspect, the inner excavation often produced apically into a tooth-like or prong-like lobe (to left of fig. 3) which gives the joints a bifid appearance from above, dorsally these joints are covered with shortish, sometimes spine-like, bristles; apical joints usually also end in a sharp point, but they may be blunt and, when viewed from above, their shapes are variable (cf. text-figs.); aedeagus tubular as in *Henica* and also constitutes part of ventral aspect of basal parts, being fused ventrally with the basal part; middle part of aedeagal complex helmet-shaped and intimately connected with the last sternite by membranous or chitinous connections (text-figs. 3 and 5, Me.); lateral struts usually broadish, ladle-shaped, ovoid or tongue-shaped; basal strut racket-shaped or chopper-shaped. The unique species (*afra*) of Macquart was the only species with which previous authors were acquainted. In this revision five new species are described and the six known species may be separated by the characters given in the following key:

1. (a) Antennal joint 3 not distinctly and markedly club-shaped, not rapidly narrowed from a broad, club-like base, the apical two-thirds not slender or almost rod-like; bristly hairs on front half and on disc of thorax entirely or predominantly black, without any or with much fewer hairs on sides of face and buccal cavity and these if present usually dark or black; scaling on body above more variegated, arranged in a more distinct pattern of longitudinal bands of whitish and brownish-tinted scales on thorax and conspicuous white spots and whitish transverse bands or smaller spots on abdomen above; scales on halteres above blackish brown or gleaming black; dark scaling on femora and tibiae above more distinctly darkened; wings in ♂♂ not entirely or predominantly hyaline. 2
- (b) Antennal joint 3 distinctly more club-shaped, its broad base almost bulb-shaped and apical two-thirds slender, rod-like (cf. text-fig. 6, a); bristly hairs on front half and even disc of thorax with numerous intermixed yellowish to reddish yellow ones; sides of face and buccal cavity with distinctly more numerous bristly hairs and these sericeous yellowish, without any dark ones; scaling on body more uniformly pale, dull ochreous yellowish to creamy yellowish, especially on abdomen where white scaling is almost confined to tergite 1 and to a central white patch on 2 and to a lesser extent across hind margins of others; scales on halteres gleaming creamy yellowish; femora and tibiae with less extensive and fewer dark scales, the integument of legs also less darkened above; wings in ♂ predominantly hyaline. ♂ ♀ *clavicornis* n. sp. (p. 44)
2. (a) Wings with the subapically whitish fenestrae obliquely across middle equally broad, confluent, continuous in a straight line, forming a conspicuous broadish oblique fascia; first main vein slightly more curved up at end, not passing straight into margin; second vein originating at a point very much nearer level of base of discoidal cell; two submarginal cells not more darkly infused in middle; bristles and bristly hairs in front of prealar bristles, the coxal bristles and spines and spicules on legs shorter; bristly hairs on sides of abdomen distinctly much shorter, poorly developed, those across hind margin of terminal segments also relatively shorter and those on venter poorly developed, almost absent and very much shorter; white scales on abdomen above, apart from large, spot-like patches centrally on tergites 2 and 6 (or 7) arranged more transversely in conspicuous bands, the discal parts of which are broken up into small spots, especially across tergites 2-4; antennal joint 3 for the greater part yellowish, reddish yellow to reddish brown, rarely dark, only its apical part and the scaling dark, only its apical third or fourth narrow and slender, its basal two-thirds or three-quarters comparatively broader and more laterally compressed. ♂ ♀ *afra* (Macq.) (p. 36)

- (b) Wings with the whitish fenestrae obliquely across middle not equally broad, more broken up into two separate spots, not forming a broadish, continuous fascia in a straight line; first vein straighter at end, passing straight into margin; second vein originating at a point much farther away from level of base of discoidal cell; two submarginal cells usually with a darker medial infusion; bristles and bristly hairs on notopleural part, coxal bristles and spines and spicules on legs usually longer; bristly hairs on sides of abdomen usually distinctly longer, denser and more developed, those posteriorly also longer and those on venter more developed, much longer and more conspicuous and, if short or poorly developed, wing-characters do not differ; white scaling on abdomen usually arranged in a central row of conspicuous spots in addition to transverse bands especially in ♂♂; antennal joint 3 entirely black, either gradually tapering, almost sub-rod-like or the broadened base passes gradually into a longer, slender apical part and the base not or less compressed. 3
3. (a) Bristly hairs on sides of abdomen very much shorter, poorly developed and those posteriorly also relatively shorter; hairs on venter distinctly much shorter, sparser or almost wanting; bristles and bristly hairs on notopleural part, coxal bristles and spines and spicules on legs distinctly less strongly developed, relatively shorter; hairs across hinder part of collar (or thorax anteriorly) much shorter, sparser and mainly pale or whitish; red or reddish on sides of thorax, on postalar calli, sides of tergite 1 and on sides of other tergites distinctly less extensive, tergite 1 being almost black, only its narrowish hind margin reddish and reddish hind margins of rest of tergites much narrower; two submarginal cells not or scarcely darkened in middle; discoidal cell on the whole shorter and broader; scaling on abdomen above without any or fewer black ones, the snow-white ones arranged in narrowish bands across hind margins of tergites 1, 2, 4 and sides of 3, 5, 6 and 7, those across 2 and 4 broken up into spots; white scaling on venter on the whole denser. ♂ *imitata* n. sp. (p. 40)
- (b) Bristly hairs on sides of abdomen distinctly more strongly developed, longer, denser and more conspicuous and those posteriorly also longer; hairs on venter distinctly more developed, longer and more evident; bristles and hairs on notopleural part, on coxae and spines and spicules on legs distinctly more strongly developed and longer; hairs across anterior part of thorax longer, denser and mainly dark or black or with more numerous dark ones; red on sides of thorax, postalar calli, base of thorax, on entire sides of tergite 1, on sides of abdomen and across hind margins of tergites distinctly more extensive; two submarginal cells usually distinctly infused in middle; discoidal cell on the whole usually longer and narrower; scaling on abdomen above with more dark or black ones in addition to pale and white ones, the pale ones across hind margins either greyish whitish or greyish yellowish or white on all tergites even if broken up or there are more white ones in patches along middle and, if similarly arranged, the bands are broader and the individual scales are broader and slightly longer; white scales on venter usually slightly less dense and if dense longish hairs are also present. 4
4. (a) Antennal joint 3 shorter, less slender, not sub-rod-like, gradually or rapidly tapering from a much broader base; lower part of head not or less darkened, not tending to be blackish; darker basal part of frons without a conspicuous and very dark or black transverse fascia in ♀♀; red on sides of thorax, especially above wings, more conspicuous and more extensive; scutellum entirely yellowish reddish or brownish; red on abdomen distinctly more extensive, more conspicuous; legs distinctly more reddish yellow or reddish brown, with more conspicuous and more extensive whitish scaling, especially below 5
- (b) Antennal joint 3 distinctly longer, more slender and sub-rod-like, only slightly broadened basally; lower part of head and medial part of buccal cavity much darker or blackish; frons in ♀ with a more conspicuous blackish transverse fascia just before middle; red on sides of thorax just above wings less evident; scutellum reddish, but with a distinct central black stripe or band and a black hind border; red on abdomen much reduced; legs very much darker, appearing black, due to predominantly very dark or black scaling. ♂ ♀ *syrticola* n. sp. (p. 41)
5. (a) Wings in both sexes less darkly tinged, the hinder part in ♀ less tinged and front part not very dark or brownish and the greater part in ♂, excepting only the smoky patches in

front half, more vitreous hyaline, appearing clearer; black spot or macula on each side of occiput larger, more extensive; reddish on sides of thorax less extensive and less conspicuous; red on abdomen also less conspicuous; fine hairs on head behind gleaming more sericeous whitish, without any dark or black ones on each side of tergite 1, all the bristly hairs on this part sericeous whitish; occiput and frons with dense white scaling; white scaling on thorax and scutellum more cretaceous or chalky whitish, thus more conspicuous in certain lights; abdomen above with fewer black scaling; white scaling on femora usually more extensive. . . . ♂ ♀ *sporanthera* n. sp. (p. 38)

- (b) Wings more darkly infuscated even in ♂ and hinder part in ♀ distinctly more darkly tinged, the darker part even more blackish brown or dark brownish and front part in ♂ with more conspicuous and slightly more extensive infusions; dark or blackish spot on each side of occiput smaller, more indistinct or even absent; reddish on sides of thorax broader, more conspicuous; greater part of abdomen more conspicuously reddish; fine bristly hairs on head behind more sericeous yellowish, with some or numerous distinct black bristles across hind margin of tergite 1 on sides; scaling on occiput sparser tinted more yellowish, that on frons less dense and more creamy yellowish; pale scaling on thorax and scutellum, especially discally, more greyish yellowish or creamy; abdomen above with more black scales; white scaling on femora less conspicuous.

♂ ♀ *henicoides* n. sp. (p. 40)

Nomalonia afra (Macq.)

(Macquart, p. 108, *Dipt. Exot.*, ii, tab. 9, fig. 4, 1840; Bezzi, p. 107, *Ann. S. Afr. Mus.*, xviii, 1921.)

This species, which Macquart mistook for *Henica longirostris* (Wied.) (= *Cylenia afra* Wied.), was fully redescribed by Bezzi in 1921. It is chiefly characterized and distinguished from the other species of *Nomalonia* described in this paper by the following characters:

Body for the greater part dark or blackish above; greater part and sides of frons, facial region, head below and sides behind eyes ivory whitish, ivory yellowish to bony yellowish; concavity on head behind usually orange yellowish, but with a variable dark or blackish spot on each side of occiput; medial part of frons in ♀, especially the basal half, orange yellowish, brownish to even dark brownish and the medial basal part of frons in ♂ usually also infused with dark; ocellar tubercle blackish; antennae almost entirely yellowish, joints 2 and 3 reddish yellowish, only the apical part or apex of 3 darkened; proboscis black; a broadish band on each side of the thorax, sometimes an abbreviated central band or spot anteriorly, postalar calli, hind margin of base of thorax, scutellum, sides of tergite 1, hind margins of the other tergites, more broadly on sides and towards apex, greater part of broad hind margins of sternites and entire or greater part of pleurae reddish brownish, reddish yellowish to muddy yellowish; legs for the greater part brownish or yellowish brownish, the upper surfaces of the femora and tibiae dark to blackish, but apparently more so on account of the dark or blackish scaling. *Vestiture* as in *Henica longirostris*, in form of black bristly hairs and bristles on body above; bristly hairs across front margin of thorax straw-coloured or pale sericeous yellowish like the fine ones on head behind; bristly hairs on ocellar tubercle, frons, and sparsely on antennal joints above black, those anteriorly on frons in ♂ more yellowish or whitish; bristly

hairs on sides of tergite 1 entirely sericeous whitish; those on sides of the other tergites 2-6 much shorter than in other species of *Nomalonia* and even those on terminal segments relatively much shorter; brush of black bristles along upper part of mesopleuron conspicuous; bristles on coxae, the spines on femora below, and the spicules on tibiae and tarsi well developed and black; scaling on thorax above as dense as in *Henica longirostris*, arranged in 4 longitudinal stripes of very pale or creamy whitish ones, the lateral bands much broader, these bands separated by slightly darker and more brownish or yellowish brownish gleaming scales; scaling on scutellum more dirty whitish, creamy to yellowish; scaling across hind margin of tergite 1 conspicuously white; the conspicuous white scaling on rest of abdomen above present as transverse bands across hind margins of tergites 2 and 4 and entire 7, the bands on tergites 2 and 4 more or less broken up medially into small tufts, with equally conspicuous dense white scaling across hind margins on sides of tergites 3, 5 and 6, faintly across hind margin of tergite 3 and as subtriangular, central, discal patches on tergite 2 apically, 3 basally and 6 and 7 basally, and sometimes very indistinctly on tergite 5, with these central patches, however, not so spot-like and well defined as in some other species of *Nomalonia*; scaling on rest of the abdomen above blackish brown, becoming yellowish on sides of tergite 2; scaling on venter conspicuously white and dense along the sides, along a central line and even across hind margins of the sternites; scaling on mesopleuron and coxae whitish; that on frons in ♀ whitish to creamy yellowish, more whitish in ♂, the sparse scaling on antennal joint 3 above black; dense scaling on stem of halteres gleaming black, and that on legs, not occupied by black ones, whitish. *Wings* distinctly tinged smoky greyish to smoky brownish in ♀, the infuscated parts in anterior half, from middle of second basal cell to opposite end of first basal cell, darker; wings in ♂ more greyish hyaline to very faintly smoky greyish, only the spot-like parts, corresponding to darker part in ♀ and not occupied by the subopaquely whitish areas, dark as in ♀, with the bases of first and second basal cells and anal cell, costal cell, base of marginal cell, a broadish oblique, transverse, elongated band (composed of three coalescent spots) across middle of wing from base of fourth posterior cell to first longitudinal vein (opposite base of second longitudinal vein), and 4 other spots on cross veins and at base of third posterior cell respectively, subopaquely milky whitish and more defined and conspicuous in ♀ where the more infuscated background shows them up as fenestrae; first, third and fifth longitudinal veins and the cross veins in the fenestrae yellowish, the rest of the veins dark blackish brown or black; first longitudinal vein slightly curved up at its end, not passing straight into costal margin. *Head* with the interocular space on vertex in ♂ as broad as ocellar tubercle but, at narrowest part, as broad as front part of tubercle; space in ♀ nearly or about 3 times as broad as tubercle; antennae with joint 1 a little longer but much broader than joint 2, joint 3 broadest at base, from there narrowed to about two-thirds length of joint then with the apical third slender, somewhat pointed apically; proboscis about $3\frac{1}{2}$ - $7\frac{1}{2}$ mm. long.

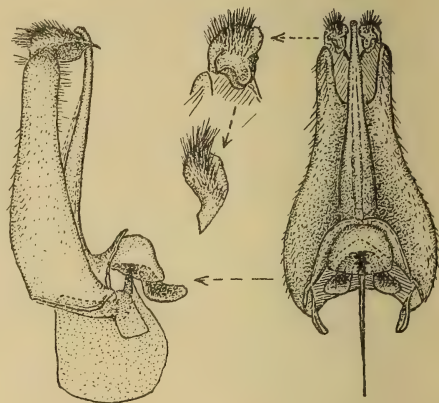
Hypopygium of ♂ (text-fig. 2) with the inner excavation of beaked joints ending apically below in a bluntish lobe and with the basal strut shaped as in figure. In the Transvaal and South African Museums.

Length of body: about 10–13 mm.

Length of wing: about 9–12½ mm.

Locality: Little Karoo, southern boundary of Great Karoo, Nieuveld Karoo and Namaqualand.

The species is slightly variable in size, length of proboscis, extent of reddish on body and the intensity of the infuscation in the wings. This species frequents sandy patches between shrubs, dry river courses and the flowers of *Mesembryanthemums*. Specimens from near Oudtshoorn in the Little Karoo appear to constitute a regional form which has slightly darker wings, even in ♂♂, darker reddish third antennal joints and less extensive reddish on sides of thorax.

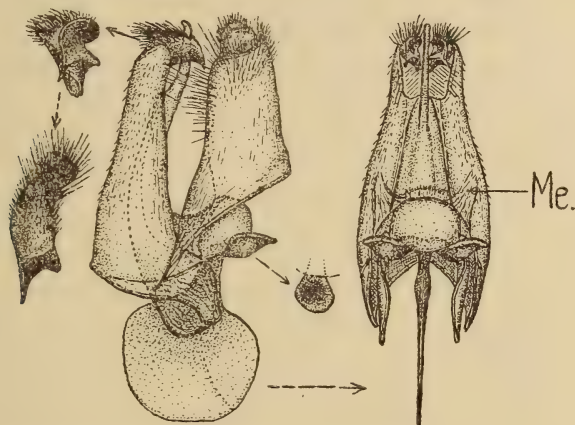


TEXT-FIG. 2. Hypopygium of ♂ of *Nomalonia afra* (Macq.).

Nomalonia sporanthera n. sp.

This species is very near *afra*, having the same colour markings on body and head as the latter. It differs only in the following characters: *Vestiture* with the bristly elements on sides of abdomen distinctly much longer; transverse bristles across hind margins of last tergites 6 and 7 also relatively much longer, and those on venter also much longer; scaling on occiput, frons, that in more or less 4 longitudinal bands on thorax and on scutellum whiter, more chalky whitish, not yellowish, and thus more conspicuous; the white scaling on abdomen above arranged in a much more conspicuous row of central spots, especially in ♂ and, together with the white ones which are arranged transversely as in *afra*, show a much more conspicuous white pattern; white scaling on legs also more evident and conspicuous. *Head* with joint 3 of antennae entirely black, less broadened in basal two-thirds, more gradually narrowed apically, thus more slender. *Wings* in ♀ similarly infuscated, and to the same extent, in ♂, however, much less than in ♂ of *afra*, appearing more greyish hyaline, the anterior infuscation more broken up into infusions or patches, namely a spot in first basal cell at base of third longitudinal vein, a large subapical infusion in second basal cell, a larger and more quadrate infusion in apical part of first basal cell and extending into basal part of enclosed submarginal cell, a subapical infusion in enclosed submarginal cell, a darkish linear infusion along vein between discoidal and fourth posterior cells and to a certain extent fainter medial infusions in the two apical submarginal cells,

with the subopaquely whitish fenestrae obvious and more distinct in ♀ and similar to those of *afra*, but with the large fenestra apically on second basal cell and the one at origin of second longitudinal vein not continuous or coalescent and in an oblique straight line as in *afra*, with the first longitudinal vein straighter at its end than in *afra*.



TEXT-FIG. 3. Side view of hypopygium with last sternite in position, ventral view of hypopygium (last sternite removed) and views of beaked apical joint and lateral strut of ♂ *Nomalonia sporanthera* n. sp.

Hypopygium of ♂ (text-fig. 3) differs from that of *afra* (cf. text-fig. 2) in the slightly different shape of the beaked apical joints and more racket-shaped basal strut, the former with the beak or point very much sharper, and the excavation on inner apical aspect very distinct, the lower inner angle more prominently spine-like and projecting. The differences become obvious when the middle figures of beaked apical joint in figure 2 are compared with the upper and lower figures on left hand in figure 3. The views are apical and dorsal views of a beaked apical joint. In the ventral view of hypopygium (fig. 3), Me refers to the torn-off membrane which connected the middle part of the aedeagal complex to the last sternite which is shown in position in the side view. The species is on the whole smaller and less bulky than *afra*.

From 4 ♂♂ and 2 ♀♀ in the South African Museum.

Length of body: about $8\frac{1}{2}$ –12 mm.

Length of wing: about 8–11 mm.

Length of proboscis: 4–5 mm.

Locality: Namaqualand: Bowesdorp (Mus. Exp., Nov. 1931). (types) Klipvlei near Garies (Mus. Exp., Nov. 1931); Springbok (Lightfoot, Oct. 1890). West Karoo: East of Pakhuis Pass (Mus. Exp., Sept. 1947).

The specimens from Bowesdorp were caught on flowering Composites on the sandy slopes of mountains.

Nomalonia imitata n. sp.

Two ♂♂ from the Moordenaars Karoo in the collections before me resemble *afra* even more closely. Compared with both *afra* and *sporanthera* they agree and differ in the following respects:

Body with the red or reddish distinctly less developed; red on sides of thorax above wings and the postalar calli less extensive or almost absent; base of thorax black, not yellowish or reddish; tergite 1 on sides almost entirely black, only narrow hind margin reddish; sides of abdomen distinctly less extensively reddish and hind margins of tergites only very narrowly so; venter with more black, the reddish hind margins narrower; pleurae on the whole darker, with more blackish brown; legs on the whole much darker, the paler lower parts of femora more brownish than yellowish. *Vestiture* with the bristles and bristly hairs developed to the same extent as in *afra*; bristly hairs on sides of abdomen and on venter distinctly short and poorly developed as in *afra* and not longish and dense as in *sporanthera*, those on venter being almost absent; hairs across hinder part of collar or anterior part of thorax mainly pale or whitish or at least with fewer black ones than in the other two species; pale scaling on body on the whole slightly finer than in the latter two species, the white ones on abdomen above arranged in narrower, but dense, bands across hind margins of tergites 1, 2 and 4 and on sides of 3, 5, 6 and 7 and with those on 2 and 4 broken up into spots, those discally across 3, 5, 6 and 7 more greyish yellowish; rest of scaling above small, more uniformly greyish yellowish and without any very dark or blackish ones as in the other two species and with the central band of whitish ones or patches of *afra* and *sporanthera* only represented as whitish discal patches on tergites 2 and 4 and indistinctly posteriorly (in which respect it is nearer *afra*); white scaling on venter on the whole denser and finer; white ones on legs also finer. *Wings* greyish hyaline, with more or less the same spot-like infusions as in *sporanthera*; obliquely situated whitish fenestrae in middle of wings not conspicuously confluent and in a straight row (or fascia) as in *afra*, but separated like those of *sporanthera*; middle parts of two submarginal cells however not or less distinctly infused in middle; discoidal cell on the other hand shortish and broadish like that of *afra*. *Head* with antennal joint 3 black, more rod-like, not yellowish or compressed in basal part as in *afra* and not so rapidly broadened in basal third as in the other species. *Legs* with the coxal bristles and the spines and spicules not so long or so strongly developed as in *sporanthera*.

From 2 ♂♂ in the South African Museum.

Length of body: about 9–9½ mm.

Length of wing: about 8½–9 mm.

Locality: Lammerfontein in the Moordenaars Karoo (west of Laingsburg) (Mus. Exp., Oct. 1952).

Nomalonia henicoides n. sp.

This species has a very great superficial resemblance to *Henica longirostris* and may easily be mistaken for it. From the preceding three species of *Nomalonia* it differs in the following respects:

The reddish on the body appears to be more conspicuously developed, being broader on sides of thorax, more apparent on pleurae and the greater part of abdomen from apical part of tergite 2 to apex in both sexes more conspicuously reddish; dark or blackish spot on each side of occiput smaller in ♀ and even wanting in ♂; third antennal joints black as in *sporanthera* and *imitata*, but shaped more like those of the former. *Vestiture* with the fine bristly elements on head behind gleaming more sericeous yellowish; pale scaling on thorax and scutellum above more creamy or greyish yellowish and not so white as in *sporanthera*; with sparser and more yellowish scaling on occiput and frons; numerous bristles across hind margin on sides of tergites 1 usually black and rarely entirely white; whitish scales on abdomen similarly arranged, but appearing even more conspicuous, the central row of white spots, in ♂ especially, even more defined; black bristly hairs on sides of abdomen also longer than in *afra* and very similar to *sporanthera*. *Wings*, especially in ♀, on the whole more dark brownish, more infuscated and even the hinder part darker, the front part in ♂ also distinctly more infuscated, and with only the subopaque whitish fenestrae separating the dark infusions, the fenestrae in both sexes as in the three preceding species, but more conspicuous in both sexes though even more so in ♀, with the large fenestrae obliquely across middle of wings not in a straight line even if coalescent.

Hypopygium of ♂ as in *sporanthera* (cf. text-fig. 3), with a similar type of beaked apical joint, but with the process on each side basally of fused basal parts relatively longer and more pointed and the lateral struts (text-fig. 4 on right) smaller, less broad and more pointed.

From 2 ♂♂ and 5 ♀♀ (holotype in the British Museum, allotype in the Commonwealth Institute and paratypes in the South African Museum and in the National Museum of Southern Rhodesia).

Length of body: about $8\frac{1}{2}$ –9 mm.

Length of wing: about $7\frac{1}{2}$ –9 mm.

Length of proboscis: about $3\frac{1}{2}$ –4 mm.

Locality: Western Cape Province: Franschhoek (Simmonds, 11 Dec. 1930); Bain's Kloof (Dickson, Dec. 1948). South-western Karoo: Ceres (Turner, Nov. 1920) (holotype). Western Cape: Bulhoek, between Clanwilliam and Klawer (Mus. Exp., Oct. 1950). Namaqualand: Nieuwoudtville (Cockerell, Nov. 1931, and Mackie, 18–22 Nov. 1931) (allotype and paratype).

Nomalonia syrticola n. sp.

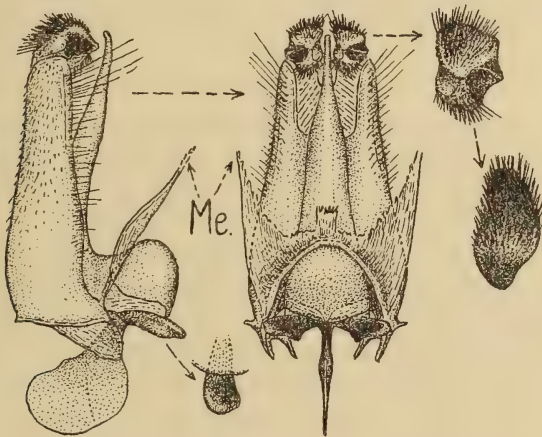
Body predominantly black above; frons in front, upper parts of facial part on each side, and margin behind eyes ivory yellowish; lower part of facial region, and head below, almost blackish or dark brownish; orange brownish basal part of frons in ♀ traversed by a very dark blackish brown or black trans-



TEXT-FIG. 4. Lateral strut of ♂ *Nomalonia sporanthera* n. sp. (left) and that of ♂ *Nomalonia henricoides* n. sp. (right).

verse fascia just before middle; greater part of head behind black (more so than in other species); reddish on sides of thorax practically absent on each side for a short distance above wing-bases; a central stripe on reddish brown scutellum and the hind margin of scutellum black; tergite 1 reddish on sides; greater part of abdomen above predominantly dark or black, the red more reduced than in any other species, being only visible on sides and narrowly across hind margins posteriorly; reddish on venter also visible only across hind margins and sometimes obscure; brownish pleurae much infused with blackish; legs dark toffee-brownish, but appearing dark due to dark scaling. *Vestiture* with the bristly hairs and bristles black as in other species, those on frons, first and second antennal joints, ocellar tubercle and sparse ones across upper part of genal fossa also black; fine hairs on head behind tinted brownish, becoming darker towards occiput on black spots; those on lower parts of head behind and on head below more sericeous or whitish; bristly hairs on sides of tergite 1 predominantly white, but sometimes with a row or some black ones across hind margin on each side, but to a lesser extent than in *henicoides*; black bristly hairs and bristles on sides of abdomen also long as in the three preceding species; black bristles in brush on upper mesopleuron well developed as in all other species of *Nomalonia*, and the black bristles on coxae conspicuous; scaling on head above and frons white or whitish; scaling on thorax in form of predominantly greyish white scales, separated or relieved by more or less longitudinal stripes of darker and more brownish-tinted scales of which the outermost band on each side is broken up into an oval and an elongated spot of dark or black scaling; scaling on humeral tubercle and a patch on each side at about middle of thoracic disc more conspicuously white; scales on scutellum greyish white; scaling on sides of tergite 1 more conspicuously whitish; dense scaling on abdomen above arranged in a pattern of white, ochreous brownish to brownish and black scales, the white ones as a central row of spots and as transverse bands across the hind margins of the tergites, of which those across tergites 2-4 (or 5) are broken up discally into small tuft-like patches (separated by spots of black scales) and those on the other tergites are only present on sides; rest of surface above, not occupied by white scales, with ochreous brownish to dark brownish and black scales, the latter as large patch basally on each side of tergite 2 and as smaller or obscure spots on sides of rest of tergites; scales on venter predominantly white, more dense across hind margins and along sides; scales on mesopleuron and coxae greyish yellowish; those on halteres black; scaling on legs predominantly dark, that basally above on hind femora appearing yellowish brownish in certain lights, but the rest of the scaling on legs dark blackish brownish to blackish in certain lights. *Wings* infuscated dark smoky brownish, more uniformly so in ♀, more patchy in ♂, but on the whole less tinged in ♂, with very dark medial infusions in the apical two submarginal cells, with the same number of subopaquely whitish fenestrae as in the other species and also on the same sites, these fenestrae in ♂ not so easily evident as in ♀, but giving the ♂-wing its patchy character; the infusions along veins in darker

parts of wings darker; veins predominantly very dark blackish brown, only the first, third and fifth longitudinal veins and parts of cross veins in fenestrae more brownish or yellowish brown; first longitudinal vein almost passing straight into costal margin at its end; base of the wings, including alula, darker and more blackish brown than in the other species; squamae opaquely dull yellowish, and fringed with brownish-tinted hairs which even gleam more brownish fulvous in certain lights; halteres with the knobs above more infused with brownish, not so pale as in the other species. *Head* with the interocular space in ♂ at narrowest part in front of tubercle slightly broader than in the other species, but in ♀ a little more than 2 to nearly, or about, 3 times as broad as tubercle; antennae with joint 1 yellowish, broader and a little longer than 2,



TEXT-FIG. 5. Side and ventral views of hypopygium and views of beaked apical joint and lateral strut of ♂ *Nomalonia syrcticola* n. sp.

with 2 and 3 black, with 3 elongate, slender and more rod-like than in any other species, scarcely broadened basally; palps slightly thickened apically as in *sporanthera* and *henicoides*, very much shorter than antennal joint 3; proboscis about 3-4 $\frac{3}{4}$ mm. long. *Hypopygium* of ♂ (text-fig. 5) is characterized in having some longish bristly hairs on each side of basal part below towards apical part; beaked apical joint (apical view and dorsal view to the right) differs from that of the other species in being blunt and not prolonged into a sharp point, with the inner excavation not produced into a prong as in *sporanthera* and *henicoides*, with the dorsum covered with stoutish, almost spine-like, bristles and, in contrast with the other species, also with bristly hairs on apical joints below; aedeagus fused with basal part ventrally much lower down than in the other species; lateral struts more elongate and the basal strut more chopper-shaped. In the figure, (Me.) refers to the still attached chitinous and membranous ventral parts of last sternite after the latter had been removed.

From 41 ♂♂ and 31 ♀♀ (holotype in Transvaal Museum, allotype in South African Museum).

Length of body: about $8\frac{1}{2}$ –11 mm.

Length of wing: about 7–10 mm.

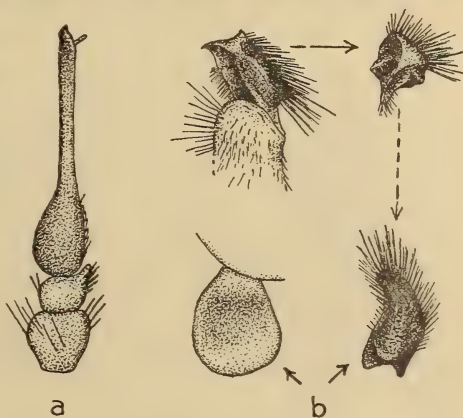
Locality: West Cape Province: Lamberts Bay (Roberts, 20 Nov. 1917) (types); Leipoldtville (Mus. Exp., Oct. 1947); Graafwater (Mus. Exp., Oct. 1947). Namaqualand: Wallekraal (Mus. Exp., Oct. 1950). Western Karoo: Augusfontein (Calvinia Dist.) (Mus. Exp., Sept. 1947).

This species differs from all the other known species of this genus in having slender rod-like third antennal joints, a distinct dark central stripe on scutellum, black hind border to scutellum, a blackish or dark cavity on head behind, much reduced reddish on abdomen, predominantly dark-scaled legs, more smoky blackish tinged wings and different type of beaked apical joints of the hypopygium.

Nomalonia clavicornis n. sp.

Body for the greater part dark or blackish on thorax above and basal part of abdomen; frons in ♂, sides of frons in ♀, the entire facial region, and head below in both sexes, the margin of head behind eyes, and the first antennal joints ivory whitish or ivory yellowish; cavity in head behind, the occiput in part in both sexes, and the discal medial part of frons in ♀ orange yellowish; ocellar tubercle, third antennal joints, the proboscis, and a spot on each side of occiput (♀ especially), black; second antennal joints reddish yellow; sides of thorax, postalar calli, base of thorax, entire scutellum, tergite 1, broad hind margin of tergite 2, and rest of abdomen above in both sexes (excluding conspicuous black basal half or more of tergite 2 and sometimes base of 3), the entire venter in both sexes, the hypopygium of ♂, the greater part or entire pleurae, the coxae and greater part of legs pale reddish yellowish, reddish, or yellowish brownish. *Vestiture* with the bristly hairs on greater part or entire frons in ♂, on apical part of frons in ♀, on antennal joint 1 below, on sides of facial region, on head below, on head behind, in entire or greater part of collar (especially in ♂) and predominantly on front half of thorax, and even discally gleaming pale sericeous yellowish to yellowish, the pale bristly hairs on front half of thorax even gleaming pale reddish golden in certain lights; hairs on ocellar tubercle in both sexes, on greater part of frons in ♀, the few or sparse short bristles on antennal joints 1 and 2 above, the rest of bristly hairs and bristles on thorax and scutellum and on upper part of mesopleuron black; tuft on sides of tergite 1 predominantly whitish, but with some black ones across hind margin on each side; rest of the longish bristles on sides of abdomen and in ♀ also across hind margins discally, the long ones on terminal segments in both sexes, those on venter (excepting the whitish ones at extreme base), bristles on coxae and spines and spicules on femora, tibiae, and tarsi black; scaling on frons whitish, that on thorax and scutellum in form of 4 longitudinal bands of paler, more creamy yellowish scales separated by more or less 3 bands

of more yellowish, ochreous brownish to slightly reddish brown scales, the outer band on each side more patchy; dense scaling on abdomen above (denser across hind margins) more uniformly dull creamy yellowish to whitish, that transversely on each side across base of tergite 2 more brownish, that in a conspicuous central patch on tergite 2 and along mid-dorsal line more whitish, the scaling across hind margin of tergite 1 distinctly more white; scaling on venter slightly paler and more whitish than above; scaling on mesopleuron white and on stem of halteres creamy whitish or white; scaling on coxae and greater part of femora creamy yellowish to white in certain lights, the scaling towards apical parts of femora above, that on tibiae and even tarsi above dark in certain lights, that on apices of femora definitely dark brownish. *Wings* distinctly tinged smoky brownish in ♀, less darkly and more smoky greyish towards hind border and apical part, darker in middle and towards costal part in an area including enclosed submarginal cell, basal half of first posterior cell and discoidal cell, very much as in *Henica longirostris* and the other species of *Nomalonia*; two apical submarginal cells as darkly infused in the middle as dark parts of wing; the wings fenestrated as in *Henica* and the other species of *Nomalonia*, the same rounded subopaquely milky whitish spots being present as in *afra* and the others, the large spots in the middle, however, not coalescent; wings in ♂ hyaline or greyish hyaline, with the costal cell, marginal cell, more than basal half of enclosed submarginal cell, greater part of the first basal cell and the second basal cell appearing subopaquely milky whitish in certain lights, with a dark spot near apex of second basal cell, one at base of third longitudinal vein, an elongated one sometimes near apex of first basal cell and sometimes another medially near apex of enclosed submarginal cell and occasionally with faint indications of slight infusions medially in the apical submarginal cells, with the fenestrated areas not present or not so visible as in ♀ and only seen in certain lights; first longitudinal vein passing almost straight into costal margin in both sexes; squamae opaquely whitish and white-haired. *Head* with the eyes above in ♂ separated by the ocellar tubercle, the narrowest part, however, only about as broad as narrow front part of tubercle; space in ♀ about $2\frac{1}{2}$ times as broad as tubercle; face on sides of buccal cavity with distinctly more hairs than in the other species; antennae with joint 1 a little longer and much broader than joint 2, with joint 3 (text-fig. 6, a) distinctly club-like, the basal third broadened and



TEXT-FIG. 6. (a) Left antenna of *Nomalonia clavicornis* n. sp. from outer side. (b) Side, apical and dorsal views of beaked apical joint and on left hand below the lateral strut of hypopygium of ♂ *Nomalonia clavicornis* n. sp.

bulb-shaped (outline), then rapidly narrowed, the rest of the joint slender and rod-like, and with a few pale scales and a small black bristle above in basal part; proboscis about $3\frac{1}{2}$ –4 mm. *Hypopygium* of ♂ (text-fig. 6, *b*) with the basal projection of basal parts longer than in the preceding species, with longish hairs on sides of basal parts in neck region below as in *syrticola*; beaked apical joints as shown in side, apical and dorsal views in figure 6, *b*; lateral struts (text-fig. 6, *b*, on left hand below) broad like those of *sporanthera* and racket-shaped in outline; basal strut also very broad and racket-shaped.

From 13 ♂♂ and 8 ♀♀ (holotype in the Transvaal Museum, allotype and paratypes in South African Museum).

Length of body: about $6\frac{1}{2}$ –10 mm.

Length of wing: about 6 – $9\frac{1}{2}$ mm.

Locality: Namaqualand: Hondeklipbaai (van Son, 11 Nov. 1933) (types); Wallekraal (Mus. Exp., Oct. 1950). West Cape: Leipoldville (Mus. Exp., Nov. 1948).

This distinct species differs from all the known species of *Nomalonia* in having club-like third antennal joints, more or less uniform whitish creamy to ochreous yellowish scaling on body above, pale scaling on halteres, pale hairs on front half of thorax, the presence of more numerous and pale bristly hairs on sides of face and buccal cavity, and hyaline or greyish hyaline wings in ♂.

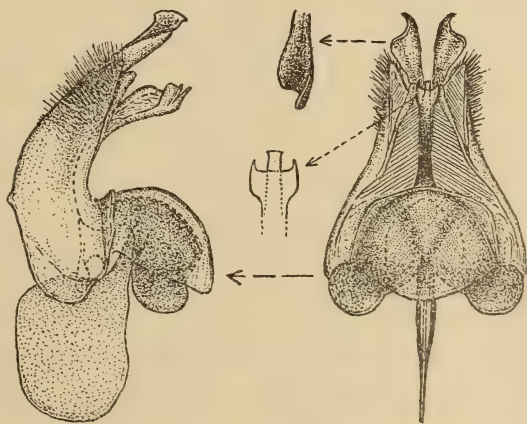
Gen. *Peringueyimyia* Bigot

(Bigot, p. cx, Bull. Ent., in *Ann. Soc. Ent. Fr.* (Ser. 6), vi, 1886;
Becker, p. 499, *Ann. Mus. Zool. Acad. Imp. St. Petersb.*, xvii, 1912;
Bezzi, p. 109, *Ann. S. Afr. Mus.*, xviii, pl. ii, fig. 19, 1921.)

This genus, which Bigot placed near the American *Heterostylum* Macq. (= *Comastes* Ost. Sack.), was referred to the *Cylleniinae* by Bezzi. With the preceding genera *Henica* and *Nomalonia*, which have also been referred to the *Cylleniinae*, it has very little in common. The chief characters of this genus are:

Body somewhat elongate, with the abdomen gradually tapering. *Vestiture* moderately dense above, in the form of fairly dense, erect, bristly hairs on thorax above, dense bristly hairs on first antennal joints below and on sides of face, propleurae and on sides of tergite 1, stoutish bristles on sides of thorax in front of wing-bases, on postalar calli, transversely across base of thorax, across hind margin of scutellum and rather densely on coxae, more slender and shorter bristly elements across hind margins of abdominal segments, bristles on upper part of mesopleuron and on frons, and dense hair-like scaling on abdomen above, more bushy or tuft-like ones on mesopleuron, and sparse ones on thorax above; greater part of pleurae bare, and the head below smooth and bare; fine sparse scaling present on occiput and flattened scaling on legs; venter with long dense hair. *Head* subglobular, narrower than broadest part of thorax;

occiput very well developed, broad and long behind eyes, with the medial cleft or sulcus long, much longer than in *Henica* and *Nomalonia*, slit-like and not broad and gap-like; occipital lobe on each side not well marked off from ocellar region by a distinct suture; eyes large and convex, not emarginate and not bisected, contiguous above for some distance in front of ocellar tubercle in ♂♂, rather narrowly separated above in ♀♀, much narrower than in *Henica* or *Nomalonia*, the upper anterior facets in ♂♂ coarser than hinder, lateral and lower ones; frons small and triangular in ♂♂, narrowish and only gradually diverging anteriorly in ♀♀; ocellar tubercle slightly elongate and not much raised; antennae with the first joints only slightly separated basally, nearly as long as or subequal in length to the third joints, very much thickened and incrassate and with very dense hairs below, the third joints tapering apically, ending in an insignificant stylar element; face very short and insignificant above buccal cavity, with the genae practically non-existent, the buccal rims being separated from inner margins of eyes by a deep furrow; proboscis rather shortish and stout, striate below, and the labella spinulate; palps rather stoutish, cylindrical, blunt apically, without any separately visible joints, and with fairly dense, bristly hairs. *Thorax* with the base not so deeply emarginate as in the other two genera. *Wings* not fenestrated, but with spots on the cross veins in the one known species, with only 2 submarginal cells, 4 posterior cells of which the first is characteristically acute apically and even shortly stalked; costal cell much shorter than in *Henica* or *Nomalonia*; second longitudinal vein originating very near base of third vein and very much recurved at its end; a distinct appendix present at base of vein between submarginal cells where it bends down at right angles to third vein; vein between discoidal and third posterior cells more distinctly S-curved than in the preceding two genera; halteres club-shaped, not spatulate and not densely scaled on sides. *Abdomen* with tergite 2 shorter and not so conspicuously transversely depressed basally, with the hypopygial structures of ♂♂ not conspicuously visible terminally, the hypopygium itself reversed in position, the outer or dorsal part of basal parts ventral in position and the last sternite dorsal in position; last sternite (tergite) characteristically notched or incised and gap-like in the middle apically. *Legs* well developed, with a row of spines on each side below on femora, more developed on



TEXT-FIG. 7. Hypopygium of ♂ of *Peringueyimyia capensis* Big.

middle and hind ones; tibiae with well-developed spicules and apical spurs; tarsi normal in both sexes, though the front ones in ♀♀ are slightly more hairy; claws more strongly developed than in *Henica* or *Nomalonia*, more distinctly curved down apically, and with the pulvilli long and well developed in both sexes. *Hypopygium* of ♂ (text-fig. 7) with the basal parts more distinctly divided into two parts by a medial suture or line, their outer apical angles prominent; beaked apical joints elongate and flattened, and shaped as shown in figures; aedeagus curved, broadened apically and shaped as shown in figure, not constituting an integral part of inner sides of basal parts as in *Henica* and *Nomalonia*, but normally joined on to them on each side by a ramus; middle part of aedeagal complex also broad and helmet-shaped; lateral struts also very and remarkably broad. Only the unique genotype-species *Peringueyimyia capensis* Bigot of this genus is known.

Peringueyimyia capensis Bigot

(Bigot, pp. cx and cxi, Bull. Ent., in *Ann. Soc. Ent. Fr.* (Ser. 6), vi, 1886; Bezzi, p. 110, *Ann. S. Afr. Mus.*, xviii, pl. ii, fig. 19, 1921.)

The species has been more fully redescribed and figured by Bezzi (loc. cit.) but may be easily recognized by the following characters:

Body predominantly black; postalar calli, sutural part between thorax and mesopleuron, and discal part or greater discal part of scutellum ferruginous brownish; hind margins of tergites 2-6 in ♀ and 2-7 in ♂ and more narrowly on 8 in ♂ and 7 in ♀, and the narrow hind margins of sternites ivory yellowish, the ivory yellowish edges on tergites margined on basal side with yellowish or reddish brown; pleurae sometimes with infusions of brownish; legs with the coxae and femora black, the tibiae and tarsi yellowish brownish to brownish, the apical parts of tarsi dark and greater part of claws black. *Vestiture* with the bristly elements on front part of frons in ♀, the dense hairs on antennal joints 1 below in both sexes, the hairs on sides in facial region, those densely across front margin of thorax and in propleural tuft, the short and fine ones around margin of cavity behind head, the hairs on mesopleuron, the sparse ones on middle parts of pleurae, the dense hairs on sides of tergite 1, intermixed bristly hairs on front and middle coxae, the denser ones on hind coxae and the long bristly hairs on venter white or whitish; bristles across hind part of scutellum, some intermixed ones across front margin of thorax and most of those on upper part of mesopleuron, especially in ♀, and the transverse bristly elements across the tergites gleaming sericeous whitish, sericeous yellowish to slightly reddish golden in different lights, their basal parts being more reddish golden in certain lights; bristly hairs on ocellar tubercle appearing dark, but some also gleaming sericeous in certain lights; rest of the bristly elements on the frons, the short bristles on antennal joint 1 above, those on palps, the short bristles on occiput, the dense bristly elements and stoutish bristles on thorax above, discally on scutellum, rather sparse ones on tergites above and especially on tergite 7

above in ♀, and more conspicuously on sides and ventrally on segments 6 and 7 in ♀, and on sides and below on segments 6–8 in ♂ black (in a slight variety the bristly elements on front part and disc of thorax more gleaming reddish golden); rest of bristles on coxae and the spines and spicules on legs black; fine, sparse scaling on occiput greyish white to greyish yellowish, the intermixed woolly scaling on thorax above silvery whitish or greyish silvery, some more or less condensed into a small silvery spot on each side discally at about middle; dense hair-like scaling on abdomen above greyish whitish in ♂, sometimes slightly more greyish yellowish in ♀, and in both sexes more densely across hind margins of the tergites, much denser on sides and, in ♂ especially, more chalky whitish, with tergite 7 in ♀ free of scaling and appearing more shiny black; hair-like scaling on venter more uniformly white or whitish especially across the hind margins, but with blackish scaling and fine hairs on last two segments in ♀ or last three in ♂; scaling on femora for the greater part gleaming opalescent whitish below and on hind ones basally above, that on upper surfaces dark or blackish, that on tibiae with a slightly yellowish opalescent sheen. *Wings* greyish hyaline, vitreous shining, but in some ♀♀ with a distinct brownish tinge in the middle region, with the base yellowish, the extreme base dark brownish in both sexes; costal cell and basal part opaquely yellowish whitish to yellowish in both sexes; a conspicuous blackish brown spot-like infuscation at the common base of second and third veins, on middle across vein and at base of second sub-marginal cell and smaller spot-like infuscations on basal cross veins of second, third and fourth posterior cells, those at base of second and third cells sometimes minute or indistinct in some ♂♂; veins dark blackish brown, becoming paler and even yellowish basally; middle cross vein much beyond middle of discoidal cell; squamae opaquely whitish, their front angle black, and their fringe of hairs gleaming pale reddish golden or fulvous in certain lights; halteres yellowish, with very pale or almost whitish knobs. *Head* with eyes in ♂ contiguous in front of ocellar tubercle for a distance only a little shorter than length of longish tubercle; space on vertex in ♀ a little less than 2 times as broad as tubercle; frons with an indication of a longitudinal line or depression and a transverse one just before middle in ♀, the apical part in both sexes feebly depressed medially; antennae with joint 1 strongly incrassate, sub-barrel-shaped, subequal or slightly shorter than 3, with 3 sub-spindle-shaped, especially in ♀, broadest a little before middle, the apical part or half, however, more slender and tapering; proboscis about 2–4 mm. long. *Hypopygium* of ♂ (text-fig. 7) with the basal parts covered with dense bristly hairs apically above; beaked apical joints with the inner apical part curled over scroll-like; aedeagus with the apical broadened part as shown in figures.

In the Commonwealth Institute and South African Museum.

Length of body: about $8\frac{1}{2}$ –13 mm.

Length of wing: about $8\frac{1}{2}$ –12 mm.

Locality: Namaqualand, Bushmanland, Olifants River Valley, and on the western Karoo escarpment.

The species is apparently slightly variable; the specimens from *Calvinia* differing from those from Namaqualand in having more numerous and distinctly more conspicuous reddish yellowish or gleaming pale reddish golden bristly hairs and bristles on thorax in front, discally, on sides and on postalar calli and not predominantly blackish ones, and the bristly elements on frons also more gleaming reddish golden and not black.

Subfam. TOMOMYZINAE

Following Becker (pp. 434 and 457, *Ann. Mus. Zool. Acad. Imp. St. Petersb.*, xvii, 1912), the genera *Tomomyza*, *Plesiocera* and *Antonia*, together with *Pantostomus* and the new Plesiocerine genera *Conomyza*, *Coryprosopa*, *Prorostoma* and *Epacmoides*, are provisionally referred to the subfamily *Tomomyzinae*. The chief character by means of which members of this subfamily may be readily distinguished from representatives of the *Lomatiinae* is the presence of a characteristic snout-like prolongation of the face or facial region; a character which is developed to a variable extent in the various genera enumerated above. An examination of these genera, however, shows that there is great disparity in the rest of their external characters and that the conically produced facial region is practically the only important link between them and as such is merely a convenient character for lumping them together. It is evident that these genera fall into three natural groups, each of which may even be raised to the rank of a separate subfamily having very little in common with one another. In the key to the genera the chief characters distinguishing these three groups, namely the *Tomomyza*-group (*Tomomyza* and *Pantostomus*), the *Plesiocera*-group (*Plesiocera*, *Conomyza*, *Coryprosopa*, *Prorostoma* and *Epacmoides*), and the *Antonia*-group (*Antonia*), are summarized.

From these characters it is evident that the aberrant genus *Antonia* differs from the genera in the other two groups in so many important features that it deserves a separate subfamily-status. On the other hand the members of the *Plesiocera*-group have superficially more in common with the *Aphoebantus*- and *Petrorossia*-groups of the *Lomatiinae* than with *Tomomyza* and *Pantostomus*, and for this reason have been referred to the *Lomatiinae* by authors. The *Lomatiinae* itself, however, is a subfamily which at present has no taxonomic homogeneity and is composed of disparate elements. A revision of all the genera, at present included in the *Lomatiinae*, is necessary to elucidate this problem of subfamily allocation, and such a survey will no doubt also throw some light on the future status of the genera here lumped together with *Tomomyza* and indicate whether or not they should be included as groups within the *Lomatiinae*.

Tomomyza-group

To this group belong two remarkable South African genera, *Tomomyza* Wied. and *Pantostomus* Bezz., which are fully dealt with in the following pages.

Gen. *Pantostomus* Bezz.

(Bezzi, pp. 69 and 79, *Broteria* (Ser. Zool.), xx, fasc. ii, 1922; Bezzi, p. 27, *The Bombyliidae of the Ethiopian Region*, 1924; Malloch, p. 119, *Stylops*, i, 1932.)

This genus, as stated by Malloch (loc. cit.), was never fully described by Bezzi. All references to it are in the keys to the genera compiled by Bezzi and in the form of a very brief comparison with another genus, *Tomomyza* Wied. Malloch on the other hand incorporated a generic description in his description of what he took to be the genotype-species of Bezzi. The true generic identity of this peculiar and remarkable genus can, however, not be gleaned from either Bezzi's keys or Malloch's specific description. A more complete redescription of this genus, as based on the true genotype-species and the new species in the collections before me, is as follows:

Body slightly elongate, having a distant resemblance to some members of the *Syrphidae* or even some *Hymenoptera*, predominantly reddish brown or with much reddish brown in all the known species and yellowish on hind margins of tergites. *Vestiture* in form of brilliantly metallic-gleaming, resplendent or highly reflecting, fine, decumbent hairs or hair-like scaling on body above and on legs, which gleam either silvery whitish, brilliantly brassy or golden in different lights and which, owing to their concentrations in lines or bands on the thorax and as transverse patches on the abdomen above, give these insects a beautiful chequered appearance, especially on the abdomen above, with in addition very fine silvery pile or tomentum along sides of facial region, in a band behind each eye, on pleurae, metapleurae and on sides of tergite 1, and with comparatively shortish, erect hairs on head above, thorax and scutellum above, and on legs in some species; sides of facial region and greater part of pleurae, however, comparatively bare, except for the fine pruinescence visible in certain lights, and without any metanotal tuft. *Head*, in relation to body, large, broader across eyes than across broadest part of thorax; facial region characteristically conically prominent or produced, the apical part of frons taking part in this conical prominence, and the antennae inserted at apex of this cone; occiput broad, with a medial, deep, hole-like depression behind ocellar region which is continued posteriorly as a slit-like sulcus, the two lobes of the occiput thus contiguous; eyes large, prominent, the hind margin only slightly sinuate or with a shallow emargination, not bisected, separated above in both sexes, but more narrowly in ♂♂ and even in ♀♀ not, or scarcely, more than 2 times distance between outer margins of posterior ocelli; ocelli distinct, the anterior medial one quite $1\frac{1}{2}$ –2 times as far away from posterior ones as the space between the latter, the anterior one situated in a slight depression which is continued anteriorly as a faint or even distinct groove, with the posterior ones on the sides of a tubercular elevation which may sometimes be prominent, narrow and ridge-like, and continued posteriorly as a central ridge; frons comparatively narrowish, the inner margins of eyes more or less parallel or subparallel to a

distinct and sometimes deep transverse frontal depression at about, or just beyond, the middle, from there gradually diverging apically and apparently more so in ♂♂, the apical part of frons raised and produced, taking part in forming the conical prominence of facial region, the apical angle of this anterior frontal part on each side prominent, even distinctly produced, and constituting the outer walls of the depressions or fossae in which antennae are inserted; facial region together with front part of frons constituting the prominent conical process; face above buccal cavity however short, the downwardly sloping buccal rims sharp or edge-like; genae absent or only a slight vestige of each indicated on each side where the shallow or very feeble groove-like depression between face and antennal insertions leads obliquely down into a scarcely perceptible depression or feeble fossa along inner margin of eye; buccal cavity itself deep, and the facial region more or less shining; antennae (text-figs. 8-11, *a*) shortish, longer in ♀♀, inserted practically at apex of cone in distinct fossae, joint 1 short, but a little longer than 2, sometimes longer or only a little shorter than joint 3, with 2 transverse, especially in ♂♂, with joint 3 laterally compressed, more so in ♂♂, broad and flattened in ♂♂ especially, sometimes leaf-shaped, on the whole pear-shaped, broadest near base and tapering or narrowed apically, slightly longer in ♀♀, also narrower and sometimes shortly pod-shaped, broadly depressed or flattened on inner side in ♂♂, the depression tending to be more groove-like in ♀♀, ending apically on upper inner aspect in a small stylar element, with joints 1 and 2 sparsely covered with gleaming short hairs, and inner sides of joints 2 and 3 sometimes showing a silvery pruinescence in certain lights; proboscis relatively short, only projecting very slightly beyond upper part of buccal cavity, but not beyond antennae, on the whole stoutish, the labial part below striate or finely strigilose, the labella pointed apically, and usually dull owing to fine striae and fine spinules; palps slender, sometimes quite as long as antennae, slightly broadened and flattened apically, with a very short oval apical joint indicated, with fine and sometimes relatively long hairs. *Thorax* rectangular, the humeral angles rather prominent and sides between thorax and mesopleuron, especially anteriorly, sharp and edge-like, the discal surface of thorax and scutellum distinctly finely punctured; greater part of pleurae smooth, finely punctured or dull only where there is pubescence on mesopleuron and upper depressed part of sternopleuron. *Wings* (cf. text-fig. 2, *Stylops*, i, p. 119) vitreous hyaline, greyish hyaline, but sometimes tinged yellowish or yellowish brownish in basal three-quarters or in basal part and basal half of first basal cell, without any basal comb; only 2 submarginal cells; 4 open posterior cells; alula wanting, and the axillary lobe narrowish; second longitudinal vein branching off from third a little distance away from base, and very much recurved at its end; vein between submarginal cells bent down at right angles to third vein, and usually provided with an appendix; middle cross vein beyond middle of discoidal cell; second basal cell rather long; halteres with the convex part of knobs transversely across apex. *Abdomen* curved, somewhat cylindrical, remarkable in that segments 2-4 and sometimes also 5 are

discally convex, appearing humped from side, each discally with a slight or deep foveate depression on each side nearer the middle, the highest point discally on tergites 2-4 being slightly beyond the middle, with tergite 1 depressed medially, with a feebler and smaller depression on each side nearer base and more to side on tergite 5, and sometimes even on 6; upper surface of abdomen distinctly and sometimes coarsely punctured, the punctures finer and denser in depressions and basally or on sides of tergites basally and towards apex of abdomen, those on tergite 1 medially sometimes transversely rugose, with the medial apical parts and hind margins of the tergites smooth and free from punctures and usually yellowish; sides of tergites slightly projecting over and beyond sides of sternites; sternites not distinctly punctured in some species, but more distinctly in others. *Legs* without any spines on femora and without any spicules on tibiae and tarsi, the spicules on tibiae represented by short, bristly hairs, the spurs on tibiae small and insignificant, the entire legs sometimes, however, covered with fine, longish hairs; claws well developed, slender and curved down apically, with the pulvilli also well developed, extending beyond middle of claws in both sexes. *Hypopygium* of ♂♂ (text-figs. 8-11, *b* and 12) very uniform and similar in all the species, usually situated on ventral aspect of abdomen, the last sternite dorsal in position; the basal part single, not divided into two by a medial suture or depression, covered on dorsum with fine, dense hair, with the outer apical part on each side, bounding the apical joints, produced and usually somewhat pointed or angular apically, but sometimes rounded; beaked apical joints claw-shaped when viewed from side, very much flattened or laterally compressed (cf. text-fig. 9 *b*, to the right); aedeagus very uniform throughout, the apical part slightly curved upwards; basal strut in some species with a distinctly visible lateral process on each side basally (cf. text-fig. 10 *b*, to right).

The genus is a very peculiar one and cannot be confused with any other South African genus of Bombyliidae. Its nearest ally is the next genus *Tomomyza*, which, however, differs from it in many essential features. Representatives of *Pantostomus* bear a marked superficial resemblance in the general shape of the body, behaviour and in flight to some South African genera of Syrphidae, such as *Paragus*, *Melanostoma* and *Xanthogramma* and they even suggest marked Hymenopteroid features. The species frequent sand or are found hovering around Mesembryanthemums or Composites. The species on which the genus is based is *Pantostomus gibbiventris* Bezz., nec Malloch. This was the only species known to Bezzi. In the collections before me at least 9 species are represented which may be separated by the following key:

1. (a) Erect vestiture in form of fine, dense hairs distinctly developed and conspicuous on head, thorax and scutellum above, on sides of tergite 1 and on legs, giving the insects a distinct hirsute appearance; decumbent gleaming pile or scaling on body also distinctly longer appearing more hair-like; wings almost entirely hyaline in both sexes, or only tinged yellowish brownish, even in ♀♀, to a very much lesser extent. 2
- (b) Erect vestiture on body almost absent, only present on ocellar region, entirely absent on thorax above and on legs, the vestiture on body represented only by depressed and

decumbent gleaming pile or scaling, which is distinctly shorter and more scale-like, especially on abdomen, not giving these insects a hirsute appearance; wings, especially in ♀♀, rarely predominantly hyaline, usually more distinctly tinged yellowish or yellowish brownish to a variable extent. 3

2. (a) A comparatively broad, conspicuous, central, black stripe present on thorax, tergites 1 and 2 and sometimes along middle of the other tergites; puncturation on thorax above finer and sparser, that on abdomen above more uniform, equally dense discally; head and body more shining; abdomen with the depressions on each side of middle of tergites 2-4 very feeble, scarcely evident, or even absent, the midline thus not raised and ridge-like; frons with the ocellar region more roundly convex, not longitudinally ridge-like, covered with predominantly blackish hairs, and with the outer apical part, bounding antennal sockets, less produced and less prominent; disc of thorax and scutellum with sparser decumbent or depressed scaling, and with finer, slightly longer, less dense, depressed pile on abdomen above, that on abdomen above also more uniformly silvery. ♂ ♀ *gibbiventris* Bezz., nec Malloch (p. 56)
- (b) A much narrower, dark, central line on thorax, and also with indications of a dark line on each side, the thorax appearing darker, without any conspicuous black central markings on abdomen above discally, but with black or blackish on each side apically of the tergites, in ♀ especially; puncturation on thorax above slightly denser and more conspicuous, that on abdomen above distinctly coarser apically and on sides apically than basally and in depressions; head and body above duller or less shining; abdomen above with conspicuous, deep and broadish depressions on each side of tergites 2-4, causing the midline to be more conspicuously raised and ridge-like; frons with the ocellar region distinctly more prominent and longitudinally ridge-like, separated from sides by groove-like depressions, covered with predominant golden yellowish hair or with fewer dark hairs, and with the apical outer angles, bounding antennal sockets, distinctly more prominent, more produced; thorax and scutellum with much denser depressed scales, and with much denser depressed pile on abdomen above, gleaming more brassy or even more pale golden discally in certain lights. ♂ ♀ *pilosulus* n. sp. (p. 58)
3. (a) Abdomen with tergite 1 distinctly, or more coarsely, transversely rugulose discally and the coarser punctures on rest of tergites above apparently coarser; head with the transverse frontal depression distinctly deeper, especially in ♀♀, the raised ocellar region from side more humped, and the declivity from it to depression, especially in ♀♀, steeper; frons relatively broader in both sexes and the outer apical angle, bounding antennal sockets, distinctly longer, more prominent; wings distinctly tinged yellowish brownish in basal two-thirds in both sexes, the apical third more or less clearer. 4
- (b) Abdomen with tergite 1 not, or scarcely, visibly transversely rugulose discally, and with the coarser punctures on rest of the tergites less coarse; head with the transverse frontal depression much shallower, even in ♀♀, the ocellar part from side less humped and its anterior declivity more sloping; frons relatively much narrower in both sexes and the outer apical angles distinctly less produced, less prominent; wings distinctly less tinged, the greater part vitreous hyaline or, if tinged in some ♀♀, they are more uniformly and more faintly tinged yellowish. 5
4. (a) Ocellar region more prominent, more raised, the anterior declivity to transverse frontal depression steeper, the depression deeper; outer apical angles of frons, bounding antennal sockets, sharper, more transversely wrinkled on side, not knob-like or dilated; bristly hairs on ocellar tubercle and frons distinctly shorter, less dense, less conspicuous, not predominantly dark or blackish; proboscis very finely striolate below, more transversely finely striolate at about middle; puncturation on sides of tergites 2 and 3 also dense and rasp-like, especially towards base, and like that on sides of 4-6; knobs of halteres dark brownish above. ♂ ♀ *fruticicolus* n. sp. (p. 61)
- (b) Ocellar region less prominent, the anterior declivity to transverse depression more sloping, the depression itself slightly shallower; outer apical angles of frons blunter, more shiningly rounded and dilated knob-like, its sides smoother, more convex; bristly hairs on tubercle and frons distinctly longer, denser, more conspicuous, and with

numerous dark or black hairs; proboscis more slender, more coarsely longitudinally striate; puncturation on sides of tergites 2 and 3 sparser, not so dense or rasp-like as on tergites 4-6; knobs of halteres entirely white above.

♂ ♀ *bullulatus* n. sp. (p. 63)

5. (a) Wings either predominantly hyaline or distinctly less tinged yellowish brownish, practically only tinged yellowish in basal half of first basal cell and at extreme base in ♂♂, similarly tinged in ♀♀, or the basal half of wings may appear tinged owing to a yellowish infusion in basal part of costal cell, base of marginal cell, greater part of first basal cell and even a slight infusion in second basal cell; hairs on ocellar part and frons usually shorter, less dense and less conspicuous; hairs on femora and tibiae, especially hind ones, shorter and less shaggy and, if longish, wings are not tinged; scaling on abdomen less dense, slightly shorter. 6
- (b) Wings more distinctly and more extensively tinged, the basal half of first basal cell, the second basal cell and even bases of discoidal and fourth posterior cells in ♂ yellowish brownish to brownish, and in ♀ more extensively tinged to much beyond middle of wings, becoming imperceptibly clearer only at apex; hairs on ocellar part and frons distinctly denser and longer; hairs on femora and tibiae distinctly longer, more shaggy, especially in ♀; scaling on abdomen above denser and longer.

♂ ♀ *tinctellipennis* n. sp. (p. 67)

6. (a) Preapical foveate depressions on each side of middle tergites 2-4 larger, deeper, situated more obliquely or longitudinally, the central part of these tergites more distinctly longitudinally raised ridge-like; transverse depression across frons distinctly deeper, the ocellar part more raised. 7
- (b) Preapical foveate depressions on each side of middle tergites 2-4 distinctly smaller, shallower, situated more transversely, the central part of these tergites not or scarcely longitudinally ridge-like, appearing more transversely convex if raised at all; transverse depression across frons shallower, the ocellar part less raised. 8
7. (a) Antennal joint 3 (text-fig. 11, a) usually tapering to a fairly sharp point, in ♂ especially, ending in a style on inner upper apical aspect and, even if tending to be blunt apically, without a slight prominence on lower apical part; puncturation on sides of tergites 2 and 3 in apical half usually sparser, the sides of these tergites tending to be more shiny; dark bands across apical part on each side of tergites narrower, sometimes less conspicuously black, with less constant and less conspicuous black along central ridge on tergites 2-5; body below and legs paler; hypopygium of ♂ (text-fig. 11, b) with the apical margin of basal part less sinuous and less pointed apically, and the basal strut not distinctly incised along its dorsal margin and not produced at its end.

♂ ♀ *capensis* n. sp. (p. 64)

- (b) Antennal joint 3 distinctly more blunt or even subtruncate apically, ending apically in a style on inner upper apical aspect and a slight prominence on lower inner apical aspect; puncturation on sides of tergites 2 and 3 tending to be denser; dark bands across apical part on each side of tergites distinctly broader, blacker, more conspicuous and also with a more constant black central band on tergites 2-5 above; body below and legs darker brownish; hypopygium of ♂ (text-fig. 11, c) with the outer apical margin of basal part sinuous, distinctly more pointed apically, and with the basal strut more deeply and distinctly incised along its dorsal margin. ♂ ♀ *melanotidus* n. sp. (p. 66)
8. (a) Hairs on ocellar tubercle and frons distinctly denser and longer; that on femora and tibiae distinctly much longer and denser; scaling on body above denser, that on sides of thorax above longer and denser; puncturation on sides of tergites 2 and 3 sparser, these two tergites also tending to be more constantly dark or black on sides; ivory yellowish across hind parts of tergites discally more extensive and broader.

♀ *psammophilus* n. sp. (p. 68)

- (b) Hairs on ocellar tubercle and frons distinctly sparser and shorter; that on femora and tibiae very much sparser and shorter, not conspicuous; scaling on body above less dense, that on sides of thorax comparatively shorter; puncturation on sides of tergites 2 and 3 denser and in ♂ even finer; ivory yellowish across hind parts of tergites discally less extensive and narrower. ♂ ♀ *mallochi* n. sp. (p. 69)

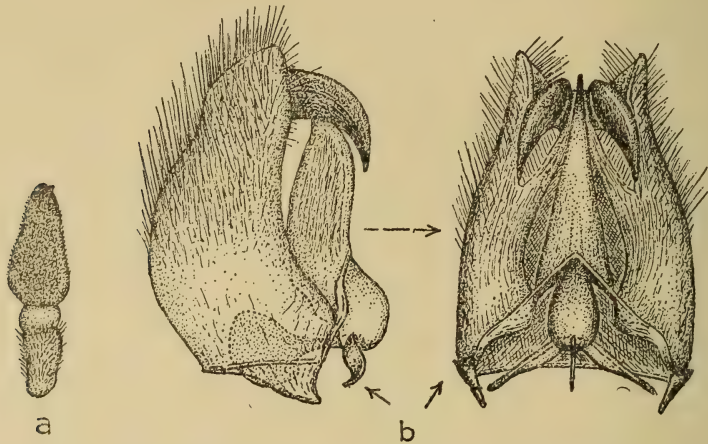
Pantostomus gibbiventris Bezz., nec Malloch(Bezzi, p. 79, *Broteria* (Ser. Zool.), xx, fasc. ii, 1922.)

There is no doubt that a number of ♂♂ and ♀♀ of this genus in the collections before me belong to this species on which Bezzi founded the genus *Pantostomus*. A ♂ and a ♀, both from Willowmore and now housed in the Transvaal Museum, have been labelled as *Pantostomus gibbiventris* by the late Dr. Brauns. The ♂ also has a red label 'Bez. 1' attached to it, proving that it constituted one of the same batch sent to Bezzi. There is also no doubt that this species is entirely different from the species which Malloch referred to and described as *gibbiventris* Bezz. (see Malloch, p. 119, *Stylops*, i, 1932). Malloch at the time was not aware of the fact that there are more than one species in Southern Africa. The true *gibbiventris* Bezz. is a very distinct species and cannot be confused with any other known South African species. As Bezzi never described this species in detail, it is fully described below:

Body predominantly reddish brown; occiput and frons even appearing more reddish; head below, inside of buccal cavity, proboscis, palps, eyes and the third antennal joints, the latter especially in ♂, black or blackish; a constant broadish central band on thorax above, sometimes a central row of elongated spots in basal halves of tergites, but more constantly on tergite 1 and medially in basal half of tergite 2, and sometimes infusions or spots on sides or across basal or apical parts on sides of tergites 2-5 or on some of them, black; infusions on sides of abdomen sometimes more brownish; hind margins of tergites 1-5, and sometimes also 6, smoothly ivory yellowish, broadest discally along mid-dorsal line and not reaching extreme sides of tergites; sides of buccal part also shining yellowish to a large extent; humeral angles also yellowish; hind margins of sternites also yellowish to ivory yellowish and sometimes with a dark or brownish central line on venter; legs predominantly pale yellowish brownish to reddish brownish, the apical parts of tarsi more brownish and the articulation between trochanters and femora, and the apices of the claws black; integument of body shining, especially the occiput, frons and facial parts, with these parts also smooth; thorax and scutellum above covered with fine separated, but uniform, punctures; abdomen above more densely and more coarsely, but also comparatively uniformly punctured, the punctures on sides of tergites 2-5 and especially 3-5, finer and more rugulose, and those discally above towards apices of the tergites perceptibly coarser than the rest of the punctures; integument across medial part of tergite 1 transversely slightly wrinkled, and the puncturation on sides of tergite 1 finer and more like that on thorax above; without any distinct, or usually with only a very feeble and shallow and smallish, depression on each side of middle of the humped tergites 2-4, those on tergites 2 and 3, however, more constantly present. *Vestiture* composed of fine, erect hairs and decumbent or subdepressed, scale-like or setae-like pile and also very fine silvery pruinescence or tomentum, the fine, erect hairs confined to ocellar and frontal part of head, to thorax and scutellum above, to sides of tergite 1 and to

legs; erect pile on occipital and ocellar region black; that on frons in front of front ocellus gleaming yellowish sericeous to brassy yellowish, especially in ♀; that on thorax and scutellum above appearing greyish in certain lights, but with a distinct yellowish or brownish tint or even subgolden when viewed from side or obliquely in front; that on legs appearing longer and gleaming sericeous yellowish to pale sericeous; fine scale-like depressed pile on disc of thorax and scutellum gleaming subgolden to even reddish golden in different lights; denser and much longer pubescence in the band along sides of thorax and the longish pubescence on mesonotum appearing as a whitish band on each side from above, but more shining sericeous yellowish in certain lights; pubescence on sides of tergite 1 predominantly sericeous whitish; the somewhat decumbent pile in punctures on abdomen above predominantly gleaming sericeous or silvery whitish, giving the abdomen a chequered appearance owing to the different arrangement of the different patches across the tergites; pile on venter also predominantly silvery; some fine pruinescence on sides of buccal region along inner margins of eyes, a dense longitudinal band behind each eye on sides of head, and the pruinescence or microscopic pile on metapleural part, on extreme sides of tergite 1 and to a certain extent on coxae gleaming like a film of silver; scale-like pubescence on legs, especially tibiae, almost glittering silvery whitish to sericeous yellowish in certain lights. *Wings* predominantly vitreous hyaline, iridescent, the extreme base and to a certain extent the costal cell and upper part of basal half of first basal cell in ♂, and in addition also to a certain extent the second basal cell and basal part of marginal cell in ♀, tinged subopaquely yellowish or pale yellowish brownish; veins reddish yellow or yellowish in basal half of wings, the rest of veins and vein between anal and axillary cells very dark brownish to blackish brown; hinder part of squamae opaquely whitish or yellowish whitish, fringed with pale or whitish hairs; halteres ivory whitish or ivory yellowish. *Head* with the interocular space on vertex in ♂ nearly, or sometimes quite, 2 times distance between outer margins of posterior ocelli, distinctly broader in ♀, though bearing the same relationship, i.e. as broad as 2 times distance between outer margins of posterior ocelli; ocellar prominence convex and tumid, more rounded and not so well marked off on sides by a furrow as in the other species and not so longitudinally ridge-like as in other species; frons with the transverse depression distinct, though appearing shallow in comparison with some other species, the basal part of frons and ocellar region not rising so steeply, with the sides of apical part of frons tumidly prominent or subprominent, the outer apical angles, bounding the antennal fossae, however, not produced or very angularly prominent; antennae (text-fig. 8, a) relatively longer in ♀ than in ♂, with joint 1 about twice, or a little more, times as long as transverse joint 2, but shorter than joint 3, cylindrical, and with fine sparse sericeous pile, with 3 distinctly broader and more leaf-shaped in ♂ (see figure), broadest nearer base, more broadly depressed on inner side, narrower and appearing more elongate in ♀, the depression on inner side more groove-like or narrower, ending apically in an upper apical stylar

element and a lower bluntish point in both sexes, the apex of joint in ♂, however, appearing more distinctly bifid in certain positions, the styler element in ♀ on the other hand being relatively more prominent; facial part comparatively smooth and shining, with only a few sparse hairs on sides of upper half of buccal cavity; proboscis relatively stoutish, about $1\frac{1}{2}$ –2 mm. long, its labial part shining and longitudinally comparatively coarsely striate, the labella more finely striate and finely spinulate; palps relatively long and slender, slightly longer than antennae, with longish fine hairs on lower outer surface. *Hypopygium*



TEXT-FIG. 8. (a) Left antenna from outer side of ♂ *Pantostomus gibbiventris* Bezz.
(b) Side and ventral (dorsal) views of hypopygium of same.

of ♂ (text-fig. 8, b) with the outer apical part of basal part more angular than in the other species; beaked apical joints more arcuately curved; basal strut with the lower margin more distinctly incised than in other species.

In the British, Transvaal and South African Museums.

Length of body: about $5\frac{1}{2}$ –8 mm.

Length of wing: about 5–6 mm.

Locality: Little Karoo, Southern Karoo, Koup Karoo, and Nieuveld Karoo.

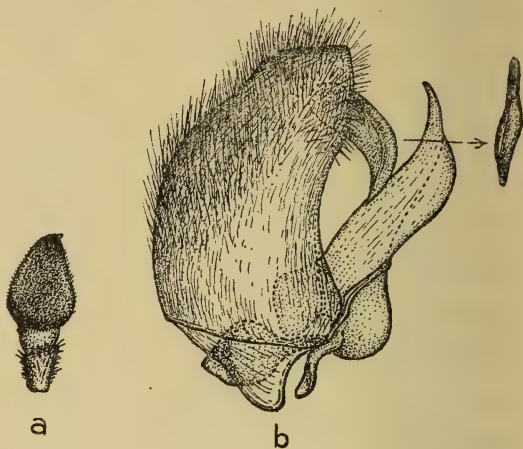
This species is easily recognized by the central broad black stripe on thorax, sometimes continued on to abdomen above, by the more shining and broadish interocular and frontal part of head, the blunter outer apical angles of anterior part of frons, the more uniform puncturation on abdomen, by the much feebler depressions on humped tergites and by the hirsute appearance due to erect hairs on thorax, scutellum and on legs.

Pantostomus pilosulus n. sp.

Body predominantly yellowish brown; eyes sienna brownish to dark brown; a narrowish central band on thorax, broadening at base, a less constant lateral fascia on each side of disc of thorax, usually broken up into a distinct anterior

spot and a more indistinct posterior one, a spot basally on each side of scutellum, the depressed discal part of tergite 1, sometimes the sides of tergite 1, and the sides, especially across hinder part or hind margins of tergites 2-6, black or blackish; sides of the abdominal tergites in ♀ on the whole much darker than in ♂ where they are often only dark brownish, with a tendency for the black on sides of abdomen in ♀ to be more conspicuous as a transverse black fascia more or less across apical part or across hind margins of the tergites and extending discally, with a central dark or even blackish band on venter and even with a tendency for the middorsal parts of the tergites in some ♀♀ and especially tergites 4 and 5 or 4-6 to be dark or even blackish; proboscis very dark blackish brown to blackish; third antennal joints, especially in ♂, also very dark or blackish; head below blackish; sides of facial region to fossa tending to be dark; region round the ocelli and medially in front of front ocellus in basal part of frons, especially in ♀, blackish or tending to be dark; mesopleuron darker brownish or more blackish brown than rest of pleurae in both sexes; sides of buccal region yellowish; humeral angles pale yellowish; postalar calli sometimes also yellowish, especially in ♀; hind margins of the tergites and sternites ivory yellowish to yellow, the yellowish on tergites not extending to extreme sides and broader medially and discally where they appear as a central row of smooth triangular spots; legs predominantly yellowish brownish to pale yellowish brownish, upper surface of hind femora tending to be darker, especially in some ♀♀, the apices of the tarsi also slightly more brownish, the apical parts of the trochanters and the apices of the claws black; integument slightly shining, the front part of frons and the facial part more so, on the whole however distinctly less shining than in *gibbiventris*; occipital and ocellar region also more punctured, also with fine, uniform, but slightly denser puncturation on thorax and scutellum; puncturation on abdomen above coarser, and distinctly less uniform than in *gibbiventris*, that across apical part of the tergites in form of more separated and coarser punctures, that towards base discally and in the depressions denser than apical puncturation but also coarser than in *gibbiventris*, that on sides of tergites 4-6 fine and rugulose, finer than on sides of 2 and 3, with very faint or scarcely discernible puncturation on sides of 1, with slight transverse rugae discally in the depression on tergite 1 and with the hind margins of the other tergites discally smooth; a broad, deep, foveate depression on each side discally of tergites 2-4, and sometimes a smaller and shallower one on tergite 5, these depressions very conspicuous and giving tergites 2-4 the appearance of also being centrally ridged; integument of pleurae, except for the fine puncturation on mesopleuron and the dull rugulose appearance on upper part of sternopleuron, smooth and shining. *Vestiture* on the whole denser than in *gibbiventris*, also in form of erect hairs on interocular part, thorax and scutellum above, sides of tergite 1, on mesopleuron and legs, and decumbent, scale-like pile on rest of body; erect hairs on occiput, ocellar part and basal part of frons gleaming brassy, pale golden or sericeous yellowish; that on posterior ocelli and in medial part of transverse frontal depression darker, more brownish and in ♀ black;

that on disc of thorax and scutellum appearing greyish in certain lights but predominantly gleaming sericeous, the basal parts of individual hairs however distinctly tinted brownish, and those along the dark fasciae on disc, especially in ♀, distinctly blackish brown to blackish especially when viewed from side; hairs on sides of tergite 1 gleaming sericeous whitish; those on mesopleuron, very sparsely on metapleural parts and fairly densely on legs gleaming sericeous whitish, sericeous yellowish to pale golden in different lights; decumbent pile on thorax and scutellum also denser than in *gibbiventris*, predominantly gleaming or glittering pale brassy yellowish or sericeous yellowish to almost silvery whitish, but with an admixture of reddish golden elements in different lights, the band of denser and longer pile on each side appearing sericeous whitish in certain lights; dense setae-like pile on abdomen above gleaming velvety and very pale sericeous yellowish, especially discally, but almost silvery in other lights, especially on sides of abdomen, the general appearance also chequered or velvety as in *gibbiventris*; pile on occiput glittering pale brassy to even pale golden; a longitudinal band of fine gleaming silvery tomentum behind each eye and similar silvery pruinescence on sides of tergite 1, sides of visible metanotal part and metapleural parts; decumbent scale-like elements on legs gleaming or glittering pale brassy to pale golden yellowish. *Wings* predominantly vitreous hyaline, shining, iridescent, with the base, basal part of costal cell and basal half of first basal cell in ♂ slightly subopaquely yellowish, sometimes scarcely discernible, with the same area and to a great extent also part of second basal cell in ♀ similarly tinged; veins in this basal half more yellowish or yellowish brown, the rest of the veins darker brownish or more blackish brown; hinder half of squamae subopaquely whitish, and bordered with sericeous whitish hairs; halteres dirty yellowish, the knobs above tending to be darkened, even distinctly dark brownish in some specimens. *Head* with the eyes separated above in both sexes by a space about 2 times distance between outer margins of posterior ocelli, but the space appearing wider in ♀; ocellar area between posterior ocelli and front ocellus distinctly raised, elongate and ridge-like, the posterior ocelli flanking this ridge on each side, and space between this medial ridge and eyes lower and slightly depressed, the ridge continued posteriorly to occipital pore;



TEXT-FIG. 9. (a) Left antenna (from outer side) of ♂ *Pantostomus pilosulus* n. sp. (b) Side view of hypopygium of ♂ of same species.

Wings predominantly vitreous hyaline, shining, iridescent, with the base, basal part of costal cell and basal half of first basal cell in ♂ slightly subopaquely yellowish, sometimes scarcely discernible, with the same area and to a great extent also part of second basal cell in ♀ similarly tinged; veins in this basal half more yellowish or yellowish brown, the rest of the veins darker brownish or more blackish brown; hinder half of squamae subopaquely whitish, and bordered with sericeous whitish hairs; halteres dirty yellowish, the knobs above tending to be darkened, even distinctly dark brownish in some specimens. *Head* with the eyes separated above in both sexes by a space about 2 times distance between outer margins of posterior ocelli, but the space appearing wider in ♀; ocellar area between posterior ocelli and front ocellus distinctly raised, elongate and ridge-like, the posterior ocelli flanking this ridge on each side, and space between this medial ridge and eyes lower and slightly depressed, the ridge continued posteriorly to occipital pore;

frons with the transverse depression slightly deeper than in *gibbiventris*, its outer apical angles, bounding antennal fossae, distinctly more prominent and more produced than in *gibbiventris*, its sides more flattened and not so tumid; antennae (text-fig. 9, *a* of ♂) with joint 1 relatively shorter than in *gibbiventris*, but also about 2 times as long as joint 2, which is very transverse above, with joint 3 distinctly longer than 1 and 2 combined, very broad and leaf-shaped in ♂, appearing almost triangular, broadest just before base, flattened and broadly flattened on inner side, narrower and more elongate in ♀, and more groove-like depressed on inner side, somewhat bluntish or subtruncate apically in both sexes, and with a visible styler element apically on inner aspect; proboscis about 1–2 mm. long, longitudinally more finely striate on labial part than in *gibbiventris*; palps brownish, distinctly and slightly shorter than in *gibbiventris*, not or scarcely as long as antennae and also hairy. *Hypopygium* of ♂ (text-fig. 9, *b*) with the basal strut shaped differently from that of *gibbiventris* and with a distinctly visible flattened lateral process on each side basally and with the apical angles of basal part less sharply angular.

From 6 ♂♂ and 8 ♀♀ (types in the South African Museum).

Length of body: about 5–9 mm.

Length of wing: about 4–7 mm.

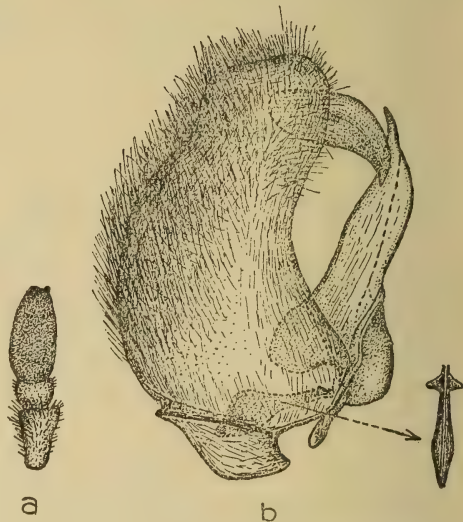
Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936) (types); Springbok (Lightfoot, Nov. 1890).

This species can easily be distinguished from *gibbiventris* by the comparative characters mentioned above, but chiefly by the deep and broad depressions and coarser puncturation on abdomen above, the slightly more produced outer apical angles of frons and more ridge-like ocellar region. From the following species it may be distinguished by its hirsute appearance due to erect hairs on thorax, scutellum and legs. This species frequents sandy patches between shrubs on which it settles like so many other Bombyliids.

Pantostomus fruticicolus n. sp.

Body predominantly reddish brown, even tending to be more reddish than brownish; proboscis, third antennal joints, head below, a very narrow central line on thorax, broadened at base of thorax and a faint, sometimes indistinct, spot on each side of disc of thorax anteriorly black; a submedial transverse dark brownish to black fascia on each side across apical part of tergites 2–6 not extending down the sides; the depressed discal part of tergite 1 sometimes also darkened; mesopleuron, especially along its upper part, also darkened; outer apical angles of frons, and sides of buccal rims yellowish; humeral angles pale yellowish; hind margins of tergites 2–6 discally yellowish, broadest along midline, where a broadly U-shaped ridge apically on tergites 2 and 3 especially is also yellowish though not smooth; hind margins of sternites not distinctly yellowish; legs reddish brownish, the apical rims of trochanters and apices of claws black; integument on the whole much duller than in *gibbiventris*, the

occiput, ocellar region and basal part of frons more coarsely punctured than in both the preceding species; puncturation on thorax also denser and coarser, the discal part of tergite 1 rather coarsely transversely wrinkled and rugose; foveate depression on each side of tergites 2-4 prominent, deep and conspicuous as in *pilosulus*, with a shallower and fainter one on each side of tergites 5 and 6 also, and with a slight depression on each side and more to side nearer base of tergites 2-4 in addition to the large submedial depressions; puncturation on abdomen above comparatively coarse, dense basally on the tergites, coarser and more scattered across apical parts, subrugose or scabrous and fairly dense on sides of tergites 2 and 3, distinctly finer, much denser and more scabrously rugulose on sides of 4-6 or 7, the puncturation across basal parts of tergites also subrugulose; integument of pleurae as in preceding species. *Vestiture* only in form of decumbent, depressed, scale-like or setae-like pile, without any erect hairs on thorax and legs, this pile on thorax also distinctly more scale-like; that on head above predominantly gleaming golden to deep golden yellowish; that on thorax predominantly gleaming brassy to pale yellowish, with an admixture of reddish golden, with the pile in two submedial longitudinal bands, and a broader band on each side of thorax appearing paler, even pale sericeous yellowish to whitish in certain lights; pile on abdomen above gleaming brassy yellowish to pale golden discally and more silvery or whitish on sides (where not denuded), this pile on abdomen also shorter and slightly less dense than in preceding two species; that on sides of tergite 1 more sericeous, more scale-like and distinctly shorter; that on legs predominantly gleaming brassy to golden yellowish; silvery tomentum or pruinescence on sides of tergite 1, metapleural part and behind eyes less conspicuous than in two preceding species. *Wings* very distinct in being distinctly tinged yellowish brown to brownish to a little beyond level of middle cross vein in both sexes, this infuscation imperceptibly grading into the more hyaline apical part, especially in ♀, the base, the costal cell and first and second basal cells slightly deeper yellowish brown, with the veins yellowish or yellowish reddish within the greater part of infuscation, dark brownish to blackish brown apically and posteriorly; hinder part of squamae whitish, and white-haired; halteres yellowish, the knobs



TEXT-FIG. 10. (a) Left antenna (outer side) of ♂ *Pantostomus fruticicolus* n. sp. (b) Side view of hypopygium and ventral view of basal strut of ♂ of same species.

brown above. *Head* with the eyes in ♂ separated above by a space slightly narrower than 2 times distance between outer margins of posterior ocelli; the space in ♀ broader than in ♂, but bearing the same relationship to ocelli; ocellar ridge markedly prominent and, in ♂ especially, continued posteriorly to occipital depression as a prominent ridge separated from eyes on each side by a very distinct and deepish groove, the ocellar ridge markedly high opposite posterior ocelli, the basal part of frons thus distinctly more steeply and more conspicuously declivous than in *gibbiventris* or *pilosulus*; frons with the anterior part more prominent, its outer apical angles, bounding the antennal fossae, more produced than in any other known species of this genus, its sides transversely wrinkled; antennae (text-fig. 10, *a*, of ♂) with joint 1 also about, or a little more than, 2 times as long as transverse second joint, with joint 3 subequal in length to 1 and 2 combined, oval in shape, slightly more elongate in ♀, subtruncate or bluntly rounded apically, and with a small stylar element on inner upper apical aspect; proboscis about 2 mm. long, very finely longitudinally striate at base below, transversely striate across middle and then again finely striate, the labella also very finely striate; palps also about as long as antennae. *Hypopygium* of ♂ (text-fig. 10, *b*) with the apical part of basal part more rounded than in *gibbiventris* and *pilosulus* and with the lateral process on each side at base of basal strut (to the right below) also very distinctly visible as in *pilosulus*.

From 1 ♂ and 2 ♀♀ (types in the South African Museum).

Length of body: about 8–10 mm.

Length of wing: about $6\frac{1}{2}$ –7 mm.

Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936).

This species may easily be separated from the two preceding species by its slightly larger size, its coarser puncturation, infuscated wings, absence of erect pubescence on front part of body and legs, steeper declivity from ocellar tubercle to transverse depression on frons and more produced outer apical angles of front part of frons. These specimens were taken resting on the dried twigs of *Mesembryanthemums*. When resting they keep the wings along sides of the abdomen and their reddish colour harmonizes with the dried reddish brown leaves and twigs of *Mesembryanthemums*.

Pantostomus bullulatus n. sp.

This species is so close to *fruticicolus* that it differs practically only in details. With *fruticicolus* it agrees in the shape of the body, colour of the body, puncturation on the body above, absence of erect hairs, in having the same infuscated wings, and the same habit of sitting on the twigs of *Mesembryanthemums*. The chief differences are:

Vestiture on the ocellar ridge and greater part of frons denser and more in form of erect hairs, which also are predominantly black or darkish on ocellar ridge and in transverse frontal depression; pile on legs slightly longer and denser.

Head with the outer apical angles of anterior part of frons a little less produced, but roundly and shiningly convex or tumid on sides, thus more knob-like and not transversely wrinkled, with the declivity, from highest part of ocellar ridge to transverse frontal depression, more sloping and not so characteristically steep as in *fruticicolus*; antennal joint 3 more leaf-shaped in ♂, more pointed apically, parallel-sided and narrower in ♀ than in ♂; proboscis distinctly more coarsely longitudinally striate on labial part. *Wings* very similar, but with the apical part of halteres and their knobs entirely ivory whitish above. *Abdomen* with the puncturation on sides of tergites 2 and 3 sparser, not dense and scabrous or rasp-like, only dense at their extreme bases; that on tergites 4-6, though denser, finer and more close together than on tergites 2 and 3, also less scabrous, rasp-like or rugulose; smooth shining yellow hind margins of the tergites along mid-dorsal line also comparatively broader, giving the appearance of a central row of slightly larger yellow spots; a distinct black line also present on each side across the extreme hind margins of the tergites; yellowish hind margins of sternites broader and more conspicuous. *Hypopygium* of ♂ similar to that of *fruticicolus*, but the broadened part of basal strut distinctly slightly broader.

From 5 ♂♂ and 2 ♀♀ (types in the South African Museum).

Length of body: about $7\frac{1}{2}$ - $9\frac{1}{2}$ mm.

Length of wing: about $6\frac{1}{8}$ - $7\frac{1}{8}$ mm.

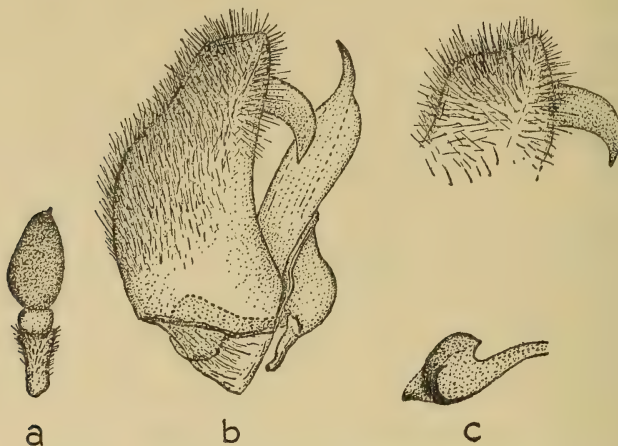
Locality: Namaqualand: Between Kamieskroon and Springbok (Mus. Exp., Oct. 1939) (types); Kamieskroon (Mus. Exp., Nov. 1936); Bowesdorp (Mus. Exp., Nov. 1931); Springbok (Lightfoot, Nov. 1890).

Pantostomus capensis n. sp.

Body predominantly reddish brown to deep reddish brown; apical part or even greater part of antennal joint 3, proboscis, head below, sometimes a central line from front ocellus to depression on frons, cavity in head behind, a narrowish central stripe on thorax, broadened at base of thorax, sometimes an indistinct spot or indefinite mark on each side of thorax in front half, sometimes the smooth base of scutellum on each side and usually a broadish transverse fascia across apical part on sides of tergites 2-5 black or blackish; dark transverse marks on tergites very often more dark brownish than black and sometimes with a tendency for the central ridge (formed by the discal depression on each side) on abdomen above to be darkened, and also with a tendency for a dark central line to be present on venter; outer apical angles of front part of frons and sides of buccal cavity yellowish or even ochreous yellowish; humeral angles yellowish; hind margins of tergites discally shining yellowish, broadest centrally and there fused with the base of a broad U-shaped yellow mark on the tergites, which mark also marks a transverse U-shaped ridge on tergites 2-4 at least; hind margins of sternites also yellowish; legs predominantly yellowish to reddish brown like rest of body, the apices of trochanters and of claws black, and apical parts of tarsi sometimes darker brownish; integument punctured as

in other species; puncturation also coarser and sparser across apical parts of tergites, that on sides of tergites 2 and 3 in apical two-thirds at least also tending to be coarse and sparse, that on sides of 4-6 finer, denser and even subscabrous like that on basal halves and in depressions on tergites above; a deepish, broadish, slightly oblique or longitudinal, foveate depression on each side discally on tergites 2-4, each of which obliquely passes on each side into a shallower and less distinct basal depression; tergites 2-4 also appearing more humped and ridged centrally as in *pilosulus* and *fruticicolus*. *Vestiture* chiefly in form of decumbent or depressed, scale-like pile, with only shortish semi-erect hairs on head above, but without any longish erect hairs on thorax above or on legs as in *gibbiventris* and *pilosulus*; pile on head above not very dense, predominantly gleaming brassy to golden yellowish, usually with reddish golden gleams in certain lights; that on thorax above gleaming brassy to golden yellowish, with an admixture of deep reddish golden pile on each side discally, with the broadish band on each side and a submedial narrower one on each side tending to be more sericeous or silvery whitish in certain lights; hairs and pile on sides of tergite 1 gleaming sericeous or silvery whitish; pile on tergites above arranged as in other species, predominantly gleaming sericeous yellowish, brassy yellowish to golden yellowish discally, appearing more silvery on sides, more or less absent from apical parts of the tergites; pile on legs also predominantly gleaming sericeous to pale golden yellowish, but appearing more silvery in some specimens; silvery pruinescence as in other species. *Wings* predominantly vitreous hyaline, iridescent, with the base, basal half of costal cell and basal half of first basal cell in ♂, and the costal cell, greater part of first basal cell, to a large extent also second basal cell and even extreme base of anal cell in ♀ faintly tinged subopaquely yellowish to yellowish brown to a variable extent; costal vein, basal half of third vein and greater part of fifth vein pale yellowish or reddish brownish, the rest of the veins dark reddish brownish to dark brown or blackish brown; halteres dirty yellowish to whitish, their knobs usually tending to be slightly or distinctly brownish above. *Head* with the interocular space in ♂ comparatively narrowish, relatively narrower than in ♂♂ of all the preceding species though also about 2 times distance between outer margins of posterior ocelli; space in ♀ much broader than in ♂, almost, quite, or even a little more than, 2 times distance between outer margins of posterior ocelli; ocellar ridge distinct, separated from inner margins of eyes by a groove-like depression, the ridge continued posteriorly, but sometimes becoming very faint, the highest point just in front of posterior ocelli, the basal half of frons gradually sloping down to frontal depression; frons with the outer apical angles, bounding antennal fossae, slightly prominent and produced, more produced than in *gibbiventris* and not tumidly rounded on sides as in the latter and in *bullulatus*; antennae (text-fig. 11, a) with joint 1 and 2 combined subequal to or a little shorter than 3, with joint 1 about, or a little less than, 2 times as long as 2, with 3 leaf-shaped in ♂, broader than in ♀, tapering rapidly to a rather sharp point, slightly blunter in ♀, ending apically on inner upper aspect in a stylet; proboscis about $1\frac{1}{2}$ -2

mm. long, striated below; palps quite as long as or even slightly longer than antennae. *Hypopygium* of ♂ (text-fig. 11, *b*) with the outer apical angles of basal part not very sharply pointed, the dorsum of basal part with fairly dense, but not very long, hairs; beaked apical joints rather rapidly curved down apically, laterally compressed; basal strut more or less ham-shaped as shown in figure, not deeply incised along the dorsal margin.



TEXT-FIG. 11. (*a*) Left antenna of ♂ *Pantostomus capensis* n. sp. (*b*) Side view of hypopygium of ♂ of same species. (*c*) Side view of apical part of hypopygium of ♂ *Pantostomus melanotidus* n. sp. (upper figure) and basal strut of same species (lower figure).

From 11 ♂♂ and 11 ♀♀ (types in the British Museum and paratypes in the South African Museum).

Length of body: about 5–8 mm.

Length of wing: about 4–6 mm.

Locality: South-west Cape: Cape Town (Milnerton) (Turner, 14–28 Dec. 1925); Cape Point (Simmonds, 1–5 Nov. 1930); Stellenbosch (Brauns, Nov. and Dec. 1925 and 1926). Western Cape: Bulhoek between Clanwilliam and Klawer (Mus. Exp., Oct. 1950). Southern Karoo: Matjiesfontein (Turner, 14–27 Nov. 1928 and 1–18 Dec. 1928) (types); Matjiesfontein (Turner, 4 Dec. 1931); Montagu (Turner, 1–21 Oct. 1924). East Cape: Port Elizabeth (Ogilvie, 29 Oct. 1931).

There is no doubt that this species is slightly variable and if a larger series is available from still more localities, local varieties or races will be found.

Pantostomus melanotidus n. sp.

If it were not for the fact that the hypopygium of the ♂ of this form shows certain distinct differences from that of *capensis*, these specimens could hardly be referred to a separate species. The specimens, however, show certain

distinct and constant features which separate them from *capensis*. Compared with the latter this species differs in having the transverse fascia across apical part on each side of tergites 2-5 (or 6) more conspicuously and constantly shining black in both sexes, and they are also relatively broader, and in addition the longitudinal central ridge (formed by the submedial depressions on sides of tergites 2-4) as well as the central stripe on tergites 5 and 6, are more constantly black or very dark in both sexes; puncturation across apical parts of tergites apparently slightly coarser and denser and even more scabrous; pleurae and legs on the whole more dark brownish, and the integument of thorax and abdomen above also more brownish than reddish; veins in wings paler, also less yellowish, more brownish; pile on body above more uniformly gleaming brassy yellowish, especially on abdomen above; antennal joint 3 usually distinctly blunter apically, appearing more truncated, ending apically on inner upper aspect in a stylet and on lower aspect in a slight, but distinct, prominence, giving the joint a slight bifid appearance. *Hypopygium* of ♂ differs from that of *capensis* in having the outer apical margin of basal part (text-fig. 11, c, upper figure) distinctly more sinuous and more angularly pointed apically, and in having the basal strut (text-fig. 11, c, lower figure) distinctly incised along its dorsal margin and slightly produced at its end.

From 34 ♂♂ and 9 ♀♀ (types and paratypes in the South African Museum and a paratype in the Commonwealth Institute).

Length of body: about $4-7\frac{2}{3}$ mm.

Length of wing: about $3\frac{1}{2}-6$ mm.

Locality: Koup Karoo: Teekloof in the Beaufort West Dist. (Mus. Exp., Nov. 1935 (types); Koup Siding (Mus. Exp., Nov. 1939); Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952); Meiringspoort (Mus. Exp., Oct. 1937). Little Karoo: Schoemanspoort (Mus. Exp., Oct. 1938); Vanwyksdorp (Mus. Exp., Oct. 1937); Touws River (Ladismith-Montagu) (Mus. Exp., Oct. 1937); Oudtshoorn-Zebra (Mus. Exp., Oct. 1951). Eastern Karoo: Graaff-Reinet (Ogilvie, 24-27 Oct. 1931).

Pantostomus tinctellipennis n. sp.

This species very closely resembles *capensis*, but as it differs in a few constant characters, which in this uniform genus must be considered as of specific value, it cannot be considered as a variety of *capensis*. Compared with the latter it differs in having a distinctly more reddish body, with the broadly U-shaped preapical yellow marks, apart from the broad yellow hind margins of tergites in middle discally, less conspicuous. *Vestiture* with the hairs on ocellar ridge and frons distinctly longer, denser and more shaggy; hairs on femora, especially on outer and upper aspects, and those on tibiae distinctly longer and denser, the legs appearing more hirsute; decumbent scale-like pile on thorax, scutellum and abdomen above also relatively denser and longer. *Wings* distinctly, more conspicuously and extensively tinged yellowish brownish to brownish in both

sexes, much like those of *fruticicolus* and *bullulatus*, in ♂ with the base, base of costal cell, greater part of first basal cell, second basal cell and even bases of discoidal and fourth posterior cells tinged brownish, in ♀ the greater part of wings to, or even beyond, middle cross vein tinged and even apical part not hyaline, but imperceptibly grading into the darker tinged part.

In most other respects, such as the nature of the puncturation and the colour of the pile it is very similar to *capensis*. Even the hypopygium of the ♂ does not differ structurally from that of the ♂ of *capensis*, though the fine hairs on the basal part appear to be less dense and less conspicuous.

From 5 ♂♂ and 13 ♀♀ (types in the British Museum and paratypes in the South African Museum).

Length of body: about $5-7\frac{1}{2}$ mm.

Length of wing: about $4\frac{1}{2}-5\frac{1}{2}$ mm.

Locality: Southern Karoo: Ceres (Turner, Jan. 1921 and Dec. 1920) (types); Witzenberg Valley (Turner, 19 Jan. 1921); upper sources of the Olifants River in Ceres Div. (Mus. Exp., Dec. 1949).

This species appears to be a mountainous form, occurring at altitudes of 1,500–3,000 ft.

Pantostomus psammophilus n. sp.

Body predominantly reddish brown to deep reddish brown; front half or part of frons and buccal part paler, more yellowish; pleurae more brownish; humeral angles, anterior and posterior spiracular openings on pleurae, hind margins of tergites discally, hinder parts of tergites above and to a certain extent hind margins of sternites ivory yellow; upper margins and apical part to a variable extent of antennal joint 3, proboscis, head below, a central line on thorax above, broadened spot-like anteriorly and posteriorly, a basal, central spot on tergite 2, entire sides of 2 and 3 and their hind margins a little way up, broad hind margins on sides of tergites 4 and 5, and an indistinct medial line or fascia on venter black; hind trochanters, upper part of hind femora and apical parts of tarsi slightly darkened. *Vestiture* with the hairs on ocellar tubercle and frons rather dense and longish, shining bright, pale brassy yellowish, some on tubercle darker, more brownish to black; scaling and pile on rest of body disposed and coloured as in *capensis* and other species; that on thorax as in *capensis*, but more pale brassy on abdomen above. *Wings* almost entirely hyaline and even in ♀ the base, base of costal cell and basal half of first basal cell scarcely tinged yellowish, only showing a slight opacity; veins yellowish; halteres pale yellowish white. *Head* with the transverse depression across frons distinctly less deep than in preceding forms; interocular space in ♀ on vertex about, or a little less than, 2 times width of ocellar tubercle; vertex as in *capensis*, with a groove on each side of tubercle and its posterior ridge-like prolongation, the tubercle, however, lower; antennal joint 3 leaf-shaped, slightly more rounded along lower margin, narrowed and pointed apically as

in *capensis*. Abdomen differing from all the preceding non-hirsute species in having the submedial, preapical, foveate depression on each side medially of tergites 2-4 distinctly shallower, more rounded and situated more transversely, the central space between them dorsally only slightly convex or hump-like, not markedly elongate and ridge-like as in *capensis* and other non-hirsute forms described in the preceding pages; puncturation on sides of tergites 2 and 3 not dense in apical half, that on sides of rest dense and subscabrous. Legs with rather dense and longish, very pale, brassy, almost subsilvery hairs on femora and tibiae, distinctly longer and denser than in *capensis* and *melanotidus*, more like that of *tinctellipennis*.

From 2 ♀♀ (type in the South African Museum).

Length of body: about $5\frac{1}{2}$ -8 mm.

Length of wing: about $4\frac{1}{2}$ -6 mm.

Locality: West Cape: Between Leipoldtville and Elands Bay (Mus. Exp., Nov. 1948). The smaller and shallower and slightly transversely situated preapical foveate depressions on medial tergites above which do not cause a distinct and definite, longitudinal ridge-like, raised part between them, easily distinguish this species from all the preceding non-hirsute species. It can only be confused with the next and very similar Rhodesian species from which it differs in the characters listed under that species. It was caught sitting on sand.

Pantostomus mallochi n. sp.

(Syn. = *gibbiventris* Malloch, nec Bezzi, p. 119, *Stylops*, i, figs. 2 and 2A, 1932.)

As was stated under *gibbiventris* Bezz., Malloch mistook some Rhodesian representatives of *Pantostomus* for *gibbiventris* s. str. One ♂ specimen from Rhodesia which was so labelled by Malloch is in the collections before me. There is no doubt that this species is entirely different from the true *gibbiventris* of Bezzi. According to Malloch's description and the labelled specimen before me, it is also evident that this species differs from all the other forms described in this memoir. I propose to name this northern form after Malloch. From *gibbiventris* it differs in not having a very broad, central, black stripe on the thorax and on tergites 1 and 2; no dense, fine hairs, in addition to the decumbent scale-like pile on head, thorax and scutellum above and on legs, distinctly shorter and less dense scaling or pile on rest of body; distinct, more conspicuous, larger and more transversely situated preapical depressions on tergites 2-4, and less uniform puncturation on abdomen above; a narrower interocular space in both sexes; a more distinct ocellar ridge which is separated from inner margins of eyes by a groove-like depression on each side; distinctly more produced, more flattened and not knob-like, outer apical angles of front part of frons; slightly more tapering third antennal joints, especially in ♂; slightly shorter palps; and a slightly different type of hypopygium in the ♂ (cf. text-figs. 8, b and 12).

The only species which it very closely resembles is the preceding *psammophilus* from the Cape. From the latter it may, however, at once be distinguished by the much shorter and less dense hairs on femora and tibiae, the sparser and relatively shorter scaling on thorax and abdomen above, narrower and less extensive ivory yellowish across hinder parts of tergites; and the denser and finer puncturation on sides of tergites 2 and 3.

It may also be confused with *capensis*, from which, however, it differs in having the preapical foveate depressions on abdomen above comparatively smaller and situated more transversely, the dorsum between these not markedly longitudinally ridge-like as in *capensis*; puncturation on sides of tergites 2 and 3 distinctly denser and that on basal half at least more subscabrous and that on sides of tergites 4-6 apparently finer and more scabrous; black fascia across apical parts of tergites on sides also more extensive and more conspicuous; upper part of mesopleuron also darker; and according to Malloch even the femora of some specimens are darkened. *Hypopygium* of ♂ (text-fig. 12) differs from that of *capensis* in having slightly shorter and less conspicuous hairs on basal part and in having the outer apical angles of basal part more distinctly rounded.

Type of ♂ in the Rhodesian Museum, paratype in the Transvaal Museum.

Length of body: about 5-9 mm.

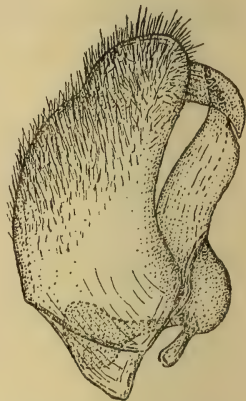
Length of wing: about $4\frac{1}{2}$ -6 mm.

Locality: Southern Rhodesia: Redbank (Stevenson, 1 Sept. 1926) (type); Mulungwane Mts. (12 Sept. 1924) (after Malloch). North Transvaal: North-east Zoutpansberg (Breyer, 7 Aug. 1916).

Gen. *Tomomyza* Wied.

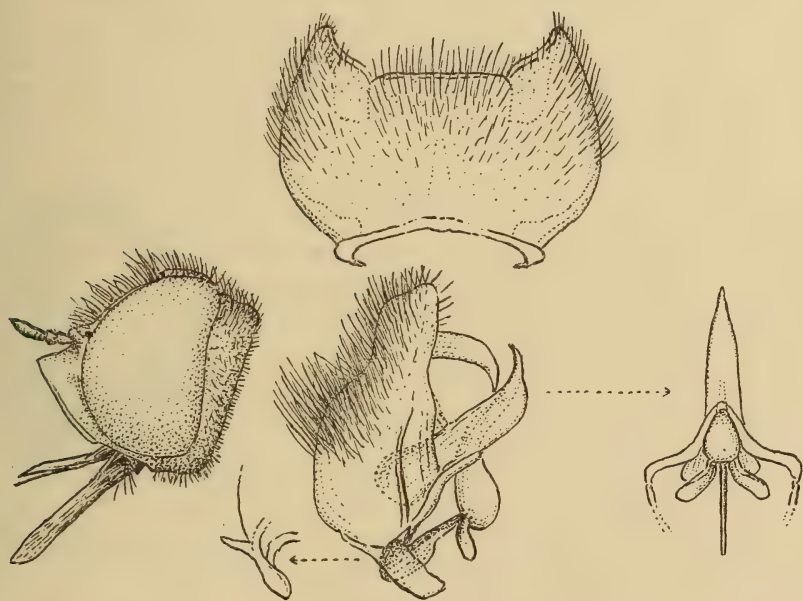
(Wiedemann, p. 322 and pl. iii, figs. 7a-e, *Aussereurop. Zweifl. Ins.*, i, 1828; Bezzi, pp. 5 and 474, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 79 and 80, *Broteria* (Ser. Zool.), xx, fasc. ii, 1922; Bezzi, p. 27, *The Bombyliidae of the Ethiopian Region*, 1924.)

In 1828 Wiedemann described and figured this genus and its genotype species *anthracoides*. To this genus Bezzi subsequently referred three other species which he never described properly, but merely distinguished in a synoptic key or in very short diagnostic notes (see *Broteria*). In addition to these three species and Wiedemann's *anthracoides* there are seven undescribed species in the collections before me. As no one has ever described this genus satisfactorily and as its characters, especially the wing-characters and vestiture, are very variable, a fuller description, based on all the known South African species, is given here:



TEXT-FIG. 12. Side view of hypopygium of ♂ *Pantostomus mallochi* n. sp.

Body slightly elongate as in *Pantostomus*, either wasp-like, Syrphid-like or Apid-like (*Ceratina*) in appearance, predominantly dark or black, but sometimes with reddish, reddish brown or brownish on extreme sides of thorax, on scutellum and on pleurae; facial region sometimes yellowish, yellowish brownish to brown; hind margins of tergites in most of the known species either narrowly yellowish, ivory yellowish or bone yellow, or at least yellowish medially along middorsal line; legs entirely black or yellowish or reddish in part. *Vestiture* either in form of fine, relatively dense, erect hairs on head, thorax and scutellum



TEXT-FIG. 13. Upper figure: last sternite of ♂ *Tomomyza anthracoides* Wied. Lower left-hand figure: side view of head of ♂ of same species. Lower middle figure: side view of hypopygium of ♂ of same species. Lower right-hand figure: ventral view of aedeagal apparatus of ♂ of same species.

above and finer ones on abdomen above, or only with erect hairs on head, or in most species with a decumbent or depressed scale-like pile or scales on thorax, scutellum and abdomen, very much like that of *Pantostomus*; pile or hair-like scaling on sides of thorax, scutellum and tergite 1 usually longer; that on abdomen in most forms very fine; very fine, silvery, microscopic pile or pruinescence usually present on sides of face, along inner margins of eyes on frons, on sides of head behind eyes, on hinder part of metapleural parts (above hind coxae) and in some species also along notopleural part and even on pleurae, sides of tergite 1, venter and on coxae to a variable extent; metanotal tuft usually absent. *Head* (text-figs. 13 and 14) large in relation to body, subglobular, slightly broader than long or even longer than broad, much broader than thorax; occiput as in *Pantostomus*, the occipital lobes also touching

and postvertical fovea distinct; eyes large, their hind margin scarcely or only very slightly sinuate, not bisected, separated above in both sexes, but more narrowly in ♂♂; interocular space, however, variable in width, but usually not more than 3 times width of ocellar tubercle; ocelli with the posterior pair usually smaller and usually more elongated than anterior one, the latter some distance in front of the former, the three ocelli either on a slight elevation, more distinct in ♂♂, or the posterior pair flank a slight elevation or pimple-like tubercle, occasionally prominent or raised and longitudinally ridge-like as in *Pantostomus*, and posteriorly not, or also occasionally, continued as a central ridge; frons as in *Pantostomus*, but sometimes comparatively broadish, either smooth or with fine, acicular puncturation or even with fine rugulose sculpture, distinctly less transversely depressed across middle than in *Pantostomus*, and the outer apical angles, bounding the antennal fossae, in most forms not so angularly prominent or produced, rarely dentate or markedly knob-like, the apex of frons falling short, or far short, of the conically pointed apex of face; facial part in front of antennal fossae usually distinctly very much longer and more projecting than in *Pantostomus*, the apex of facial cone thus appearing farther forward, this part of face and sides smooth or microscopically sculptured, but always shining; genae absent and fossa on sides of facial region absent or only feebly indicated, to a lesser extent than in *Pantostomus*; buccal cavity well developed, deep, capacious, its rims thin and sharp; proboscis short, stoutish, scarcely or only slightly projecting beyond apex of buccal cavity, its lower part usually finely striate or striolate, the labella well developed, pointed apically; palps slender, rather long, longer than antennae, slightly broadened apically, a small apical joint scarcely separately discernible, the lower surface of palps finely transversely wrinkled or striated and with slender hairs below; antennae (text-figs. 16, 18, 22 and 24) shortish, inserted in sockets, with joint 1 slightly longer and often thicker than 2, joint 3 the longest, usually broadish, ovate, pea-pod-shaped or leaf-shaped, usually somewhat blunt apically, sometimes subtruncate, or even pointed, usually broadest near base, tending to be narrower in ♀♀, with the inner surface flattened or even broadly sub-groove-like depressed, ending apically in an upper and sometimes also a distinct lower process, thus giving the apex a slight bifid appearance. *Thorax* either slightly broader than long or longer than broad; integument shining or sometimes dull; upper surface with fine acicular puncturation or finely ruguloso-punctate or sometimes finely punctured; mesopleuron either distinctly convex or tumid or flat; greater part of pleurae bare and shining, but



TEXT-FIG. 14. Side view of head of ♀ *Tomomyza pictipennis* Bezz.

upper part of mesopleuron and the metapleural parts more or less sculptured like thorax above, and the upper part of sternopleuron, hinder part of pteropleuron and to a lesser extent upper part of hypopleuron either finely striolate, striate or even rugulose to a variable extent; scutellum well developed, sculptured like thorax. *Wings* (text-figs. 15, 17 and 21) vitreous hyaline, hyaline, greyish hyaline, tinged or infuscated, or even spotted to a variable extent; basal comb wanting; alula wanting or very vestigial; two, three or even more submarginal cells may be present, more often only two, but in at least two known species apical part of wings is unstable and three or four submarginal cells are formed by supernumerary cross veins (cf. text-figs. 15 and 17); four posterior cells present and all open; second vein originating near base of third, recurved or looped (sometimes markedly so) at its end; vein between submarginal cells in species with only two submarginal cells usually provided with a stump at its bent-down base; middle cross vein beyond middle of discoidal cell; vein between discoidal and third posterior cells either very sinuous or S-curved or only slightly sinuous; squamae narrow; halteres as in *Pantostomus*. *Abdomen* either broad, ovate, dorso-ventrally compressed and excavate below, or more often cylindrical, sometimes more or less laterally compressed, without very distinct, conspicuous, deep, preapical and submedial, foveate depressions on each side of tergites 2-4 (or 5) as in *Pantostomus*, the middorsal region thus not longitudinally raised or ridge-like, sometimes with the tergites transversely convex; upper surface shiny or duller, either with relatively coarse puncturation or with very fine, dense, leathery, setiferous puncturation; tergite 1 usually slightly transversely depressed basally and more coarsely sculptured; last sternite in ♂♂ (cf. text-fig. 13, upper figure) with its sides produced into a lobe or tongue-like lobe. *Legs* without any spines on femora, either with dense and longish hairs or shorter hairs and fine scaling; tibiae with short, stiffish, spicule-like hairs or with only feeble and inconspicuous, or even without any, spicules; front tarsi not modified; claws well developed, slender, curved down apically; pulvilli long in both sexes. *Hypopygium* of ♂♂ (text-figs. 13, 16, 18, 19, 20, 22, 23 and 24) also situated on the ventral aspect of abdomen as in *Pantostomus*, the last sternite of which is dorsal in position; basal part of hypopygium also composed of a single and undivided part, usually covered with fairly dense hair, ending basally on each side in a sort of process or lobe and in two known species at least also with an outwardly projecting process at base of this lobe, with the outer apical angles of basal part usually slightly produced and rounded; beaked apical joints usually curved claw-shaped; aedeagus shaped much as in *Pantostomus*, but sometimes with the apex much recurved (cf. text-fig. 24).

This genus and *Pantostomus* together constitute a distinct and well-defined group which markedly differs from the *Henica* and *Nomalonia*-group and in essential features also from the next group. The genotype species of this genus is *Tomomyza anthracoides* Wied. The species belonging to this genus can be more or less roughly divided into three groups each of which differs from the other

in certain characters which suggest a separate generic status, but as some forms are transitional and show overlapping characters, generic homogeneity for any one of these groups cannot be established without some confusion. At present it is more convenient to consider the genus *Tomomyza* as a composite and variable genus. The three sections are evident from the following key to the known species:

1. (a) Body more bee-like (*Ceratina*) in appearance, the abdomen broad, ovate, dorso-ventrally depressed, but convex above and excavated below, with dense and coarse puncturation, without any ivory yellowish hind margins or spots along mid-dorsal line above; thorax broader than long, with coarser and more acicular puncturation; mesopleuron distinctly more convex or tumid; pleurae with more distinct or even coarse striation; vestiture in form of longer and denser erect hairs on head, thorax, scutellum and entire abdomen above, decumbent scales being entirely absent and silvery pruinescence much less, confined only to head and above hind coxae; wings normally with three submarginal cells and usually tinged or infuscated; vein between discoidal and third posterior cells more distinctly S-curved and the latter cell much contorted; legs densely and conspicuously hairy; antennal joint 3 narrower, less leaf-shaped; base of shell-like basal parts of hypopygium also with an outwardly projecting spine-like process at base of posterior prolongation. 2 (Section 1)
- (b) Body more wasp-like in appearance, the abdomen more cylindrical or even laterally compressed, with only fine, setiferous puncturation and usually with some ivory-yellowish across hind margins of some of the middle tergites or most of the tergites, either as central spots or discal fasciae; thorax longer than broad, with minute setiferous or dull, fine rugulose puncturation; mesopleuron not or scarcely convex, more often flat; pleurae smoother or with much finer striation; vestiture in form of fine, erect hairs on head and sometimes also on other parts above, extensive decumbent pile or scaling on body above and on abdomen and more extensive silvery pruinescence on head, sides of thorax and on pleurae; wings normally with only two submarginal cells and, if with more than two, the condition is inconstant and due to unstable supernumerary cross veins in apical cells and the wings in such cases usually spotted; vein between discoidal and third posterior cells only feebly sinuous and, if very sinuous, wings are spotted; third posterior cell usually not or less contorted; legs finely scaled or only finely or inconspicuously hairy; antennal joint 3 broader, more compressed and leaf-shaped; base of shell-like basal parts without an outwardly projecting process at base of posterior prolongation. 3
2. (a) Scutellum entirely black; hairs on head above with numerous white ones intermixed or predominantly white, those on thorax and scutellum above and on abdomen above, especially in a series of tufts along mid-dorsal line and across bases of tergites on sides, on last two tergites, on basal half of venter and on basal halves of hind femora white or gleaming silvery whitish; ovipositorial brush of ♀ pale; puncturation on abdomen above on the whole distinctly coarser; upper part of sternopleuron, hinder half of pteropleuron and to a lesser extent hypopleuron more distinctly and more coarsely longitudinally rugulose or rugose; wings less darkly and not uniformly tinged smoky brownish throughout, the apical and hinder parts much clearer than costal half, especially in ♂; knobs of halteres whitish. ♂ ♀ *anthracoides* Wied. (p. 77)
- (b) Scutellum conspicuously brick-red, with a central black band; hairs on head, body and legs entirely dark or black, excepting only metapleural hairs, those on sides of tergite 1, faint and scarcely discernible ones across bases of middle tergites on sides and at base of venter which are pale or whitish; hairs on abdomen shorter and without segmental patches dorsally above; brush of ♀ dark; puncturation on abdomen relatively finer; upper part of sternopleuron, hinder half of pteropleuron and upper part of hypopleuron with finer striae; wings distinctly darker, more uniformly smoky brownish throughout in both sexes; knobs of halteres brown above. ♂ ♀ *guillarmodi* n. sp. (p. 79)
3. (a) Wings infuscated or infused with smoky brownish, brownish to dark brownish to a greater or lesser extent in anterior part or even beyond middle and with the apical

- and hinder parts spotted (cf. text-figs. 15 and 17); three or even four submarginal cells present and formed by supernumerary cross veins in apical cells, the third or fourth cell at apex usually small; vein between discoidal and third posterior cells usually more S-curved; vein 2 much recurved or looped at its end. . . . 4 (Section 2)
- (b) Wings vitreous, slightly greyish hyaline, or tinged smoky greyish, not darkly infuscated, without infusions or spots; only two submarginal cells present; vein between discoidal and third posterior cells distinctly less sinuous, only feebly S-curved; vein 2 usually not so deeply recurved apically. . . . 5 (Section 3)
4. (a) Facial cone less prominent, formed mainly by the conical face, the dorsum of which is visible some distance in front of antennae and the sockets of the latter thus situated farther backwards; scutellum smaller, more semicircular, less convex; wings (text-fig. 15) with more uniform and extensive brownish infuscation in anterior half or even beyond, including basal cells; more infusions and spots present on cross veins and along apical and posterior veins, near ends of posterior veins and at apices of anal and axillary cells; three submarginal cells usually present; vein 2 less deeply looped at end; middle cross vein very much beyond middle of discoidal cell; vein between discoidal and third posterior cells more zigzag and provided with a stump projecting into third posterior cell; abdomen without faint indications of discal depressions and without Δ -shaped patches of silvery pile; legs relatively shorter, the hind femora yellowish to beyond middle and hind tibiae with a broad medial yellowish ring; pulvilli much narrower; smaller form, about 5½–9 mm. long and a wing about 4–7 mm. long. . . . ♂ ♀ *pictipennis* Bezz. (p. 79)
- (b) Facial cone more prominent, Pantostomid-like, formed by apex of face and to a great extent also by front part of frons and antennal sockets, the dorsum of face in front of antennae very short and antennal sockets far forward; scutellum larger, more triangular, more convex; wings (text-fig. 17) with a more broken up and less extensive smoky brownish infusion in anterior part, the greater part of costal and marginal cells and apical parts of basal cells clear or less tinged; infusions and spots on cross veins and along apical and posterior veins smaller and fewer, without any spots along posterior veins and at apices of anal and axillary cells; four submarginal cells present, formed by cross veins and connecting stumps in apical part; vein 2 markedly bent upon itself apically; middle cross vein a little beyond middle of discoidal cell; vein between discoidal and third posterior cells merely sinuous, without a stump; abdomen with faint indications of slight discal depressions on tergites 2 and 3 and with Δ -shaped discal patches of faint silvery pile; legs comparatively long, the hind femora yellowish only at bases, and hind tibiae more extensively yellowish, only base below and apices black; pulvilli broader, more leaf-shaped; slightly larger form, about 11 mm. long, with a wing about 8 mm. long. . . . ♂ *pantostomoides* n. sp. (p. 82)
5. (a) Wings with the axillary lobe longer, more or normally developed and broader, the anal cell distinctly narrowed apically or subacute and sometimes, even though narrowly open, very acute apically; middle cross vein much or very much beyond middle of discoidal cell; second vein less recurved apically; costal cell longer, extending much beyond middle of wing; erect hairs and scaling or pile, as well as pruinescence, on head, thorax and scutellum above more developed, denser, longer; abdomen with the ivory yellowish hind margins discally or dorsally along midline more extensive, either as larger spots or distinct yellow hind margins; facial cone anterior to antennal fossae longer or even markedly long. . . . 6
- (b) Wings with the axillary lobe distinctly much shorter, more reduced and narrower, the anal cell narrower, not narrowed apically, very broadly open; middle cross vein nearer middle, only a very little beyond middle of discoidal cell; second vein markedly and much more recurved or looped apically; costal cell shorter, extending only a little beyond middle of wing; hairs and pile and also pruinescence on head, thorax and scutellum above distinctly less developed, sparser and shorter; abdomen very much compressed, with much smaller central yellowish spots apically on tergites 2–4 and with a more distinct whitish pubescent line across hind margins of 2 and 3 on sides only; facial cone anterior to antennal fossae distinctly shorter. . . . ♂ *anomala* n. sp. (p. 93)

6. (a) Interocular space on vertex in both sexes distinctly much broader, much broader than ocellar tubercle; front ocellus, though removed from posterior ones, not separated from them by a distinct transverse depression; occiput longer, much longer than antennal joint 3; head and body above, though often with fine microsculpture, more shining; thorax, scutellum and abdomen above not dull and without transverse rugulose sculpture; wings hyaline, vitreous hyaline or only feebly greyish; hairs on head, thorax and scutellum above slightly longer; sides of face and legs either yellowish to a variable extent or dark or black; spots or hind margins on tergites discally yellowish or more ivory yellowish. 7
- (b) Interocular space on vertex at narrowest part, even in ♀, very much narrower, in ♀ only about as broad as ocellar tubercle; front ocellus separated from posterior ones by a transverse depression or gap, the posterior ocelli on sides of a rather conspicuous rounded tubercle; occiput much shorter, only about or only a little longer than antennal joint 3; frons and facial part, though shining, distinctly finely rugulose; occiput, thorax and scutellum above dull due to distinct transverse rugulose sculpture and abdomen above also dull due to rugulose or leathery sculpture; wings distinctly and uniformly tinged smoky greyish throughout; hairs on head above distinctly shorter and absent or very minute on thorax and scutellum; an obscure spot on sides of facial part, humeral angles, middle part of pleurae, hind margins of or central spots on tergites, last two tergites, venter in part, coxae and legs more reddish or yellowish red. ♀ *stenolopha* n. sp. (p. 85)
7. (a) Legs much paler, either predominantly yellowish or with much yellow; humeral angles yellowish or at least yellowish brownish; pleural parts also paler brownish or even yellowish brownish; hind margins of tergites distinctly more broadly yellowish above along mid-dorsal line, giving the appearance of a longitudinal row of triangular spots; conical facial region also more extensively yellowish on sides and, if not, legs at least not uniformly blackish or dark; hairs on thorax and scutellum dark or black; fine scale-like pile on abdomen above also very dark or blackish; abdomen tending to be more distinctly laterally compressed. 8
- (b) Legs predominantly very dark blackish brown or black; humeral angles and entire thorax and scutellum above black; pleurae also relatively much darker; hind margins of tergites more narrowly and more ring-like ivory whitish or yellowish, the yellow extending right down the sides and, if a central row of spots are present, the body and legs predominantly black; conical facial region predominantly black; hairs, if present on thorax and scutellum, whitish; fine pile discally along mid-dorsal line of abdomen gleaming distinctly silvery whitish; abdomen tending to be more cylindrical. 10
8. (a) Greater part of sides of conical facial region along rim of buccal cavity yellowish; humeral angles paler yellowish and pleurae also paler, more chestnut brownish or yellowish brownish; legs on the whole also paler, the pale parts more distinctly yellowish; fine decumbent pile on thorax above gleaming more distinctly golden or reddish golden in certain lights. 9
- (b) Greater part of facial region shining black, only a longitudinal spot near lower part on each side yellowish; humeral angles more brownish and pleurae also darker, more dark castaneous or piceous brownish; legs also tending to be distinctly darker, deeper castaneous brownish, the upper surfaces of femora and tibiae appearing much darker, more blackish; fine decumbent pile on disc of thorax appearing dark, not gleaming reddish golden to the same extent when viewed from obliquely behind. ♂ ♀ *philoxera* n. sp. (p. 87)
9. (a) Sides of thorax and scutellum not or scarcely yellowish brownish, the scutellum entirely black; hind margins of tergites or the central row of triangular spots on abdomen above usually paler, more ivory whitish; legs with distinct, longish, fine hairs in addition to the scaling. ♂ ♀ *pallipes* Bezz. (p. 86)
- (b) Sides of thorax and especially the broadish sides or lateral basal angles of scutellum distinctly yellowish brownish; central row of triangular spots on abdomen above usually distinctly more ochreous to orange yellowish; legs without any longish hairs, only covered with scaling or very short pile. ♂ ♀ *karooana* n. sp. (p. 88)

10. (a) Integument of frons, facial region and body not conspicuously shining or polished in appearance, that of thorax and scutellum above dull and microscopically rugulose; pleural parts with silvery tomentum and thus duller; facial cone also duller, with fine pile on sides; vestiture on thorax and scutellum in form of fine decumbent and scale-like pile only; fine pile in broadish patches along mid-dorsal part of abdomen in ♂ brilliantly gleaming silvery whitish; frons with the outer apical angles, bounding antennal sockets, distinctly less tumid or knob-like, not produced; interocular space on vertex in both sexes relatively narrower, and inner margins of eyes parallel from vertex to level of front ocellus; antennal joint 3 distinctly longer and, even in ♂, not broadly leaf-shaped, the apex blunter and the two processes discernible; knobs of halteres brownish above; abdomen with tergite 1 longer, more developed, scarcely overlapped medially by scutellum, with the ivory whitish hind margins broadened centrally above to form a central row of smallish spots; legs more dark blackish brown, their scaling appearing pale or yellowish whitish in certain lights.
 ♂ ♀ *barbatula* Bezz. (p. 90)
- (b) Integument of frons, facial region and entire body above and below conspicuously shining, highly polished in appearance, that of thorax and scutellum above only finely and sparsely punctured, but also polished; pleurae brilliantly shining, without silvery tomentum; facial cone also shining and without pile around the rims apically; vestiture on thorax and scutellum in form of fine, whitish or silvery-gleaming hairs; fine pile on abdomen above dark or blackish, not conspicuously silvery whitish; frons with the outer apical angles, bounding antennal sockets, distinctly more tumid, shining, knob-like and slightly produced; interocular space on vertex in ♂♂ relatively broader and inner margins of eyes slightly diverging posteriorly, the narrowest part being at about level of front ocellus; antennal joint 3 (text-fig. 24, a) distinctly shorter and, even in ♀♀, broadly leaf-shaped, tapering to a sharp point; knobs of halteres whitish; abdomen with tergite 1 shorter and medially overlapped by scutellum, with the ivory whitish hind margins not broadened spot-like discally; legs black, their fine pile and scaling very dark or blackish. II
11. (a) Smaller form, about $4\frac{1}{2}$ –5 mm. long, with a wing-length of about $3\frac{1}{2}$ –4 mm.; hair on thorax and scutellum distinctly longer, more conspicuous; outer apical part of frons tending to be less dilated or tumid. ♂ ♀ *nitidula* n. sp. (p. 92)
- (b) Larger form, about 6 mm. long, with a wing-length of about $4\frac{1}{2}$ mm.; hair on thorax and scutellum distinctly shorter, less conspicuous; outer apical part of frons, in ♂ at least, tending to be more tumidly prominent.
 ♂ slight var. of *nitidula* n. sp. (p. 93)

Tomomyza anthracoides Wied.

(Wiedemann, p. 323 and pl. iii, figs. 7 a–e, *Aussereurop. Zweifl. Ins.*, i, 1882; Bezzi, p. 79, *Broteria* (Ser. Zool.), xx, fasc. ii, 1922.)

This species of Wiedemann does not appear to be common in collections. The only specimens which I take to represent it are in the South African Museum. Wiedemann's description of the species is very unsatisfactory and his figures are as misleading. Macquart's short reference to this species and his illustration of the wing (p. 52, *Dipt. Exot.*, ii, 1840, and on tab. 16, fig. 9) are not helpful either. Two important and characteristic features of this species, however, distinguish it from all other known South African forms and, as these are specially mentioned by Wiedemann in his short description, I have no doubt in referring the specimens before me to Wiedemann's original *anthracoides*. It is characterized as follows:

Body and legs entirely black; proboscis and palps and to a certain extent the knees more brownish. *Vestiture* with the hairs on ocellar region and frons com-

posed of white and dark ones; rest of hair on occiput, on thorax and scutellum, metapleurae, sides of tergite 1, broadly and conspicuously across bases (especially sides) of 2-5, in central discal patches or tufts on 2-5, on more or less entire 6, across hind margin of 7, on more or less basal half of venter and on basal halves of hind femora white or gleaming silvery; brush of ♀ very pale sericeous yellowish; hairs on mesopleuron, the very much finer or minute ones on sides of tergites 2-5 (not occupied by the slightly longer whitish ones) across bases, intermixed ones on inflexed sides of abdomen, on venter posteriorly and on femora and tibiae dark or appearing brownish in certain lights; silvery pruinescence present narrowly on each side of front part of frons, as a spot on each side of facial part above genal grooves, in a spot or streak behind eyes, in a narrow streak in front of wing-bases and on pleural plate above hind coxae; a small tuft of flattened silvery-gleaming hair-like scales also present in front of wing-bases. *Wings* in ♀ infuscated smoky brownish, the apical and hinder parts becoming imperceptibly less darkly infuscated and the basal and costal half darker brownish; in ♂ the basal and costal parts to basal half of first basal cell dark as in ♀, but the apical and hinder parts less darkly tinged and appearing clearer than in ♀; halteres whitish. *Head* (text-fig. 13) with the interocular space on vertex in ♂ $2\frac{3}{4}$ -3 times width of ocellar tubercle, in ♀ nearly, to even a little more than, 3 times width of tubercle; ocellar tubercle narrower in ♂ than in ♀; frons with a central line-like impression, more evident in ♀, the frons ending apically on each side above antennal sockets in a blunt, dentate prominence; antennae with joint 1 slightly longer than 2, with 3 rapidly narrowed apically, sometimes sub-spindle-shaped, but much more narrowed apically than basally, not or scarcely broader than 2 (side view). *Thorax* with distinct acicular puncturation more or less in streaks, separated by less punctured or impunctate streaks; scutellum also with acicular puncturation, but with a central impunctate or smoothish streak; upper part of sternopleuron, hinder half of pteropleuron and to a lesser extent upper part of hypopleuron rather coarsely longitudinally rugulose or striate; mesopleuron more convex or tumid than in other species. *Abdomen* rather densely and fairly coarsely punctured above, denser and coarser discally along middle, more transversely rugulose discally across hind parts of tergites, with the basal part of tergite 1 more coarsely rugulose in depression. *Hypopygium* of ♂ (text-fig. 13, lower figures on right) with a distinct, spine-like process projecting outwards at base of posterior prolongation of shell-like basal parts (see to left of lower middle figure); hairs on basal parts rather long and dense.

In the South African Museum.

Length of body: about 6-8 mm.

Length of wing: about 5-6½ mm.

Locality: West Cape: Between Leipoldtville and Elands Bay (Mus. Exp., Oct. 1947). These insects were caught on flowers of *Carphobrotus edulis* and *C. acinaciformis* and also resting on the sand between these plants.

Tomomyza guillarmodi n. sp.

A closely related species of *Tomomyza* in the collections before me differs from *anthracoides* in the following respects:

Body on the whole more shiny, also entirely black, but the scutellum is brick-red with a broadish, central, black band or spot; postalar calli and the small ledge-like platelet in front of wing-bases also reddish; puncturation on scutellum less coarse, that on abdomen above distinctly finer and on sides of tergites 4 and 5 denser; upper part of mesopleuron with finer and less coarse sculpture; upper part of sternopleuron and hinder half of pteropleuron with much finer striae. *Vestiture* with all the hairs on head and body above and on legs entirely dark or black, excepting only the gleaming whitish or pale ones on metapleurae, sides of tergite 1, at base of venter and some on hind coxae; hairs on abdomen also relatively shorter, without any tufts, either dark or silvery, on discal parts of tergites. *Wings* distinctly darker, more uniformly smoky brownish throughout in both sexes, the almost imperceptibly less darkly tinged apical and hinder parts still more tinged and darker than in *anthracoides*; apical part of second vein even more deeply recurved; knobs of halteres brown above. *Head* with the dentate prominence apically above antennal sockets slightly broader and less sharp; antennal joint 3 tending to be more pea-pod-shaped. *Hypopygium* of ♂ very similar to that of *anthracoides* (cf. text-fig. 13, lower figures on right), but differs in having relatively less dense and shorter hairs on shell-like basal parts, a relatively shorter posterior prolongation of these parts, and a basal strut which has no indentation or emargination in its dorsal margin.

From 3 ♂♂ and 2 ♀♀ (types in the South African Museum).

Length of body: about 6–8 mm.

Length of wing: about 5–7 mm.

Locality: Little Karoo: Ladismith (Guillarmod, Sept. 1948).

Tomomyza pictipennis Bezz.

(Bezzi, p. 474, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 80, *Broteria* (Ser. Zool.), xx, fasc., ii, 1922.)

This species was never fully or properly described by Bezzi and it is almost impossible to identify it from the short notes and references given by Bezzi. The chief characters of this interesting and easily recognizable species are:

Body predominantly black; anterior margin of thorax on each side, upper part of humeral angles, sides of thorax in front of wings, a submedial spot on each side of base of thorax, broad sides of scutellum, propleural part, greater part of pleurae (excluding only black mesopleuron, lower part of sternopleuron and mesosternal part), hind margins of tergite 1 and to a great extent venter reddish brown or sienna brownish; venter, however, much darker in many specimens; sides of buccal rims tending to be yellowish or yellowish brown, sometimes distinctly yellowish on lower aspect; hind margins of tergites 2–6, more especi-

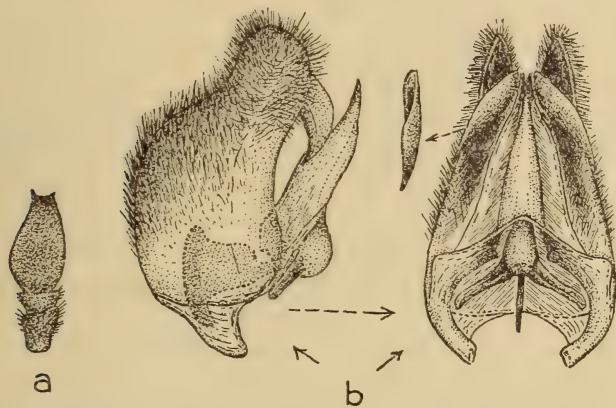
ally discally, and greater part or entire 7 ivory yellowish, bony yellowish or even slightly ochreous yellowish, the yellowish often margined with orange yellowish on basal side, the hind margins of tergites 2-6 also broader along the mid-dorsal line, usually broader in ♀; hind margins of sternites reddish, reddish brownish to yellowish; exposed parts of hypopygium and lobes of last sternite (dorsal in position) of ♂ to a large extent yellowish; front and middle legs predominantly yellowish brownish, sienna brownish to brown, the upper surfaces usually darker brownish and in some specimens entirely dark brownish; hind legs with the coxae and trochanters brownish, the basal half of femora pale yellowish and the apical half very dark brownish, appearing black, due to black



TEXT-FIG. 15. Wing of *Tomomyza pictipennis* Bezz.
(X=cross vein sometimes dividing first submarginal cell into two).

scaling, the middle part of hind tibiae and sometimes basal half at least of hind tarsi pale yellowish, the base below and apex of hind tibiae being dark and black-scaled and the hind tarsi sometimes also entirely dark; integument of occiput and ocellar part microscopically rugulose, that on sides of front part of frons and facial region more or less smooth and shining; thorax and scutellum above dull and finely rugulose and abdomen finely and subscabrously ruguloso-punctate, even finer than on thorax; greater part of pleurae smooth and shining. *Vestiture* in form of shortish, bristly hairs on ocellar and frontal part, on humerus, on sides of tergite 1 and sparsely on metapleural parts and of fine, decumbent scales or pile on thorax, abdomen and legs, that on disc of thorax very fine; fine, brilliantly gleaming, silvery whitish pruinescence on sides of frons, sides of facial region and behind eyes and to a certain extent on pleurae and coxae; hairs on head above predominantly dark or black; scales or pile on thorax silvery greyish, the minute ones on disc more or less in three streaks and the longer ones on sides as a sericeous whitish band, the intervening streaks on disc dark or tinted brownish; scales or pile on sides of scutellum and on tergite 1 gleaming sericeous to silvery whitish, that medially dark blackish brown; fine scale-like pile on abdomen above mainly very dark or black, gleaming slightly greyish in certain lights, especially on venter below, distinctly more silvery greyish basally and medially on tergites; scaling on legs dark or blackish on upper parts of front and middle femora and on dark parts of hind legs, the rest of the scaling on legs and even the intermixed ones on upper parts

of front and middle ones gleaming sericeous whitish to slightly silvery, more so on tibiae and pale parts of hind legs. *Wings* (text-fig. 15) very characteristic, with the anterior costal half to beyond middle cross vein, including marginal cell and somewhat irregular spot-like infusions along veins in apical and hind parts and the spots near ends of posterior veins, dark smoky brownish to blackish brown; greater part of axillary lobe and anal cell, a spot near apex of first and second basal cells, a spot across base of second and third veins, a small roundish spot and a larger, more quadrate spot in apical part of marginal cell and the apical and posterior parts of wings (not occupied by dark infusions and spots) subhyaline or subopaquely whitish, giving the wings, especially the apical and hinder parts, a marbled or mottled appearance; veins very dark



TEXT-FIG. 16. (a) Left antenna (outer side) of ♂ *Tomomyza pictipennis* Bezz.
(b) Side and ventral views of hypopygium of ♂ of same species.

blackish brown to black; second vein very undulating and recurved in apical part; three submarginal cells usually present, formed either by the second submarginal cell being divided into a triangular cell at apex of wings and an elongated cell by a longitudinal vein, or by a cross vein ('X' in figure) uniting the projecting stump at base of normal second submarginal cell to marginal cell, in which case the apical triangular cell is incomplete; veins in this apical part usually unstable or zigzag, with a tendency to give off stumps and even to form more than three submarginal cells; vein between discoidal and third posterior cells constantly sinuous as shown in figure and also giving off a short stump into third posterior cell; halteres brownish, their knobs dark brownish to black above. *Head* (text-fig. 14) with the interocular space on vertex in ♂ about 2 times distance between outer margins of posterior ocelli, in ♀ slightly broader, but relationship to ocelli the same; tubercular prominence in ♀ broader and larger; frons with the outer apical angles of raised front part not produced; antennae (text-fig. 16, a of ♂) with joint 1 about, or more usually a little more than, 2 times as long as 2, with 3 a little longer than 1 and 2

combined, flattened, more flattened and depressed on inner side, broadest at about, or just before middle, somewhat truncated apically, ending on inner apical aspect in a style and on lower aspect in a slight process; proboscis about $1-1\frac{1}{2}$ mm. long, rather stoutish, finely striate below, the labella rather pointed. *Hypopygium* of ♂ (text-fig. 16, b) with the outer apical parts of basal part much produced, without any spine-like outwardly projecting process at base of posterior prolongation as in the two preceding species; the hair on basal part fairly dense and conspicuous; beaked apical joints claw-shaped and much laterally compressed (middle figure of text-fig. 16, b); basal strut shaped as shown in dotted outline.

In the British, Transvaal and South African Museums.

Length of body: about $5\frac{1}{2}-9$ mm.

Length of wing: about 4-7 mm.

Locality: Eastern and Little Karoo, Koup Karoo, Tankwa Karoo, Nieuveland Karoo and Namaqualand.

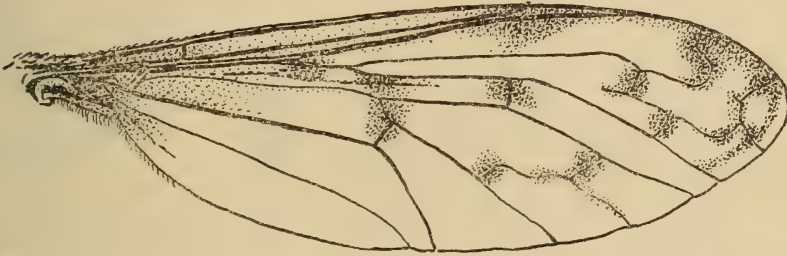
This species appears to be very variable in size, in the intensity of wing-coloration and in the unstable nature of the veins at apex of wings. Specimens from Somerset East have the three submarginal cells formed by the base of vein between the normal two submarginal cells becoming joined on to apical part of marginal cell as shown by 'X' in the text-figure. In the more typical form from Willowmore and other parts of the Karoo and Nieuveland Karoo the three submarginal cells are formed (as in text-figure, but without 'X') by a cross vein in the normal second submarginal cell. The veins in apical part of wings are, however, very unstable and there is a tendency for them to give off stumps which sometimes even divide the apical part into more than three submarginal cells. Some specimens from Worcester and Citrusdal have the wings very darkly infuscated and the usual apical spot-like infusions more extensive and in some specimens from these localities a cross vein (shown in dotted outline) in apical part of first submarginal cell even divides off another apical cell in wings. Other specimens from the Bo-Kouga in the Uniondale District have the wings even more extensively darkened, the entire background itself being dark and even the anal and axillary cells are infuscated. Some specimens from the Moordenaars Karoo, Koup Karoo and Uniondale District have the infuscation in wings much reduced and represented only as spots on the cross veins and along other veins. Such specimens are often also distinctly smaller.

Specimens of this species were taken resting on or flitting among the branches and dried twigs of *Mesembryanthemums*.

Tomomyza pantostomoides n. sp.

Body mainly black; humeral angles, sides of thorax, scutellum (excepting a central black fascia or streak), a submedial fascia on each side of tergite 1 opposite scutellum, propleural part, pteropleuron, sternopleuron in part and metapleural parts castaneous brownish or dark sienna brownish; discal parts

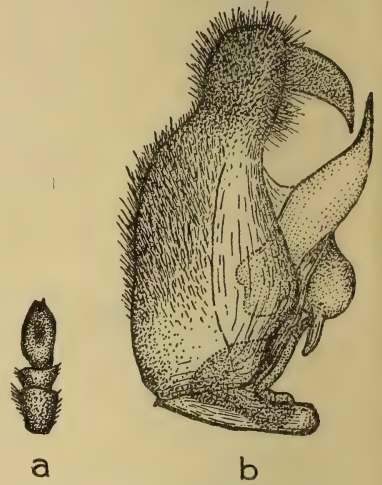
of tergites and to a certain extent also of sternites tinted obscurely sienna brownish; hind margin of tergite 1 yellowish brownish; hind margins of tergites 2-8 broadly ivory to bone yellowish mid-dorsally, forming a central row of spots on abdomen above; hind margins of 3 and 4, however, ring-like ivory yellowish across entire margin and central spots on 7 and 8 occupying almost entire discal part; upper margin of lateral lobes of last sternite (tergal in position) broadly yellowish, the lower margin more narrowly yellowish red; hind margin of last sternite also narrowly yellowish; legs with the coxae and front and middle femora dark castaneous brownish, lower surfaces of the latter slightly paler, with the hind femora blackish brown, their basal parts yellowish; front and middle tibiae yellowish, their lower surfaces and apices dark; hind tibiae yellowish, their bases below and apical parts blackish; tarsi dark blackish brown, their bases more yellowish brownish. *Vestiture* with the hairs on ocellar



TEXT-FIG. 17. Right wing of ♂ *Tomomyza pantostomoides* n. sp.

tubercle and base of frons black; fine hairs on frons anteriorly gleaming sericeous yellowish and reddish golden; sparse tuft on each side near apex of buccal cavity and fine pile on occiput also reddish golden in certain lights; hairs on sides of thorax sericeous whitish; fine pile and scaling on thorax above in streaks of silvery ones, separated by deep reddish or brownish golden ones; that on scutellum, as well as small tuft on each side apically, silvery whitish; that on sides of tergite 1 gleaming sericeous whitish; pile on abdomen above very fine, mainly black, but with a Δ -shaped patch of silvery-gleaming pile discally on tergites 2-6 and also much silvery pile on posterior tergites; that on venter mostly black; scaling or pile on legs mostly black on femora, silvery on their bases, that on tibiae gleaming silvery, blackish below on front and middle tibiae and on base below and apices of hind ones; tomentum on frons, antennae, in a spot on each side of buccal cavity and behind eyes silvery. *Wings* greyish hyaline, but with smoky brownish infusions and spots in the anterior part and on cross veins as shown in text-fig. 17; second vein very much recurved at end; veins in apical part giving off appendices or cross veins to form four submarginal cells of which one at apex of wings is small; middle cross vein a little beyond middle of discoidal cell; the latter roughly spindle-shaped, the vein between it and third posterior cell sinuous and without a projecting stump; squama brownish, its sparse fringe also brownish; halteres brownish, the hinder upper

part of knobs whitish. *Scutellum* comparatively large, transverse, transversely convex discally, narrowed apically to a bluntly rounded and shining apex, its sides steep. *Head* more like that of a *Pantostomus*, the apical part of frons taking part in formation of the prominent facial cone; antennal sockets far forwards as in *Pantostomus*; dorsal part of face very short, very much shorter than in any other known species of *Tomomyza*; ocellar tubercle ridge-like and continued as a ridge to occipital sulcus; interocular space in ♂ as broad as tubercle; antennae with joint 1 about twice as long as joint 2, joint 3 shaped as shown in text-fig. 18, *a*; buccal cavity deep, its apex ending acutely in facial part between antennae; proboscis about 1.5 mm. long. *Abdomen* longish, with very fine microscopic, setiferous puncturation, showing an indication of a very faint and shallow, oblique depression on each side discally on tergites 2 and 3; apical part of abdomen somewhat laterally compressed. *Legs* very well developed, rather long, especially the hind ones; spurs on apices of tibiae as reduced as in *Pantostomus*; pulvilli broadish, leaf-shaped. *Hypopygium* of ♂ (text-fig. 18, *b*) very much like that of *pictipennis*, but differing in having more hairs on basal parts, especially apically; surface of apical part of basal parts distinctly more coarsely punctured; basal lobe of basal parts also longer; basal strut (in dotted outline) slightly differently shaped.



TEXT-FIG. 18. (*a*) Right antenna (inner side) of ♂ *Tomomyza pantostomoides* n. sp. (*b*) Side view of hypopygium of ♂ of same species.

From a ♂ in the South African Museum.

Length of body: about 11 mm.

Length of wing: about 8 mm.

Locality: South-eastern Cape: Patientie in the Humansdorp Division (Mus. Exp., Oct. 1938).

This unique ♂-specimen is remarkable in that it constitutes a sort of transitional species between *Pantostomus* and *Tomomyza*. The rather prominent facial cone in which the anterior part of frons and antennal sockets also take part, and the consequent shortening of the true face, is characteristic of *Pantostomus* and not present in any of the other known species of *Tomomyza* to the same extent. In this respect and also in the shape of its scutellum and longish legs it differs from other species. From *pictipennis*, which it superficially resembles in appearance, colour and certain wing characters, it may at once be distinguished by the structure of the facial cone, larger, more convex, more pointed and sub-triangular scutellum, longer legs, more extensive black and yellow on hind legs, less infuscated or mottled wings, etc.

Tomomyza stenolopha n. sp.

A solitary ♀ specimen in the collections before me is so entirely different from the other known species of this genus that it cannot be related to any one of them. It is characterized as follows:

Body mainly black; an obscure spot on each side of buccal cavity, humeral angles, sides of postalar calli, middle parts of pleurae, greater part of metapleural region, hind margin of tergite 1 (especially discally), a large central spot apically on tergites 2-5 (larger on latter), entire 6 and 7, greater part of venter, coxae and legs yellowish red or reddish; antennae and proboscis more brownish. *Vestiture* with the markedly shortish hairs on ocellar region and frons black; fine scale-like hairs or pile on sides of thorax and on scutellum silvery; scaling on thorax minute or wanting, mainly dark; pile on abdomen above very minute, scarcely discernible, dark or black, but appearing greyish (especially on sides) in certain lights, the fine hairs across hind margins of posterior tergites also black; markedly shortish and rather sparse hairs on sides of tergite 1 tinted brownish, those on metapleuron more greyish; fine hairs on femora mostly dark and minute hairs on tibiae more yellowish like the spicules under tarsi; silvery pruinescence present on each side of facial part, in a streak behind eyes and obscurely on notopleural part and hinder part of metapleurae. *Head* with the occiput markedly short, only about as long as, or only a little longer than, antennal joint 3, dull due to minute rugulose microsculpture; central occipital fovea rather deep; interocular space on vertex markedly narrow, narrower than in all the other known species, in ♀ only about as broad as, or scarcely wider than, ocellar tubercle; ocellar tubercle pimple-like, containing only posterior ocelli and continued posteriorly as a ridge, the anterior ocellus situated more forward and separated from tubercle by a distinct transverse depression or gap; frons more rapidly widening apically than in other species and, though shining, with fine, transverse, rugulose microsculpture; face short, but distinct, also with minute rugulose microsculpture; antennae with joint 1 short, broader than the very small, transverse joint 2 which it embraces cup-like, joint 3 broadest very near base, gradually tapering, but subtruncate apically, ending in an upper, small stylet and a lower, smaller process; proboscis stoutish, confined to buccal cavity. *Thorax* dull above, due to distinct, transverse, rugulose or leathery sculpture which is also present on scutellum; pleurae more shining, but with fine striae. *Wings* distinctly and uniformly tinged smoky greyish throughout, only the costal cell and basal half of first basal cell more yellowish; only two submarginal cells present; base of vein between submarginal cells with a stump; vein between discoidal and third posterior cells normally sinuous; halteres with anterior part of knob brownish and hinder part whitish. *Abdomen* cylindrical, dull due to very fine, leathery or rugulose sculpture, which is coarser across basal part of tergite 1 and slightly finer and denser on sides of rest of tergites.

Type in the South African Museum.

Length of body: about $5\frac{1}{2}$ mm.

Length of wing: about 4 mm.

Locality: Western Cape: Wit River Valley running into Bain's Kloof near Wellington (Mus. Exp., Dec. 1949).

Tomomyza pallipes Bezz.

(Bezzi, p. 80, *Broteria* (Ser. Zool.), xx, fasc., ii, 1922.)

This species, which Bezzi described in a very short note, is represented by a ♂ and some ♀♀ in the collections before me. There appears to be no doubt that one specimen, named by the late Dr. Brauns and now in the Transvaal Museum, was one of the batch of specimens which Brauns had forwarded to Bezzi. The characters of this species, as based on the material before me, are as follows:

Body predominantly black; antennal joint 3 slightly yellowish brownish along lower part in some ♀♀; sides of face and buccal part yellowish; humeral angles and an elongated spot on anterior upper part of mesopleuron also pale yellowish; middle part of pleurae tinted brownish to a large extent; hind margins of tergites along mid-dorsal line ivory yellowish, represented as a central row of ivory yellowish spots, the yellowish on tergite 7 in ♀ and lappets of last sternite in ♂ more extensive, the greater part of 7 ivory yellowish; venter more or less dull brownish, but sternite 7 in ♀ more yellowish; legs predominantly pale, yellowish to pale yellowish brownish, the upper apical part of hind femora and to a certain extent upper surfaces of the others and the tarsi slightly darker, more brownish; integument of ocellar, frontal and facial regions smooth and shining, that of thorax above very minutely, but not densely, punctured, more or less subshining, not dull and rugulose as in *pictipennis* and *stenolopha*, that of abdomen subscabrously ruguloso-punctate; pleural parts shining. *Vestiture* with distinct, fine hairs on head, thorax and scutellum above, and on legs in addition to the fine depressed or decumbent, scale-like pile on body above; hairs on head, thorax and scutellum and on legs very dark blackish brown or black; pile in a band on sides of thorax gleaming sericeous whitish to silvery, that on sides of scutellum also sericeous whitish; fine scales or pile on disc of thorax appearing greyish, but with distinct golden or brownish gleams; hairs on sides of tergite 1 mainly sericeous whitish; scaling or pile on abdomen very dark blackish brown to black, but with a slight greasy or greyish sheen; fine silvery tomentum or pruinescence on sides of, or on entire, frons, sides of facial region, in a streak behind eyes, along each side of thorax and to a fainter extent on pleurae; scaling on legs mainly dark on upper and apical parts of femora, especially hind ones, paler below and on tibiae, appearing slightly more yellowish in certain lights, but dark in others. *Wings* greyish hyaline; veins brownish to blackish brown; only two submarginal cells present; vein between discoidal and third posterior cells not markedly sinuous, without a stump; halteres brownish, the upper anterior part of knobs brownish. *Head* with the

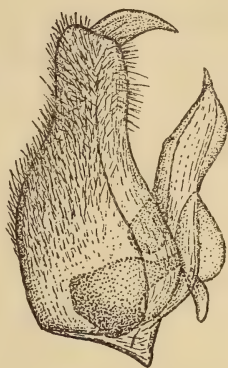
interocular space on vertex at narrowest part about 2 times distance between posterior ocelli in both sexes, though appearing broader in ♀; outer apical parts of frons not prominent or produced, only slightly tumid on sides; antennae with joint 1 very short, scarcely, or only a little, longer than joint 2, joint 3 a little longer than 1 and 2 combined, more or less equally broad throughout in ♀, somewhat truncated apically, ending in a minute stylet on inner upper aspect; proboscis rather slender, about 1-1.5 mm. long, finely striate below; palps slender, quite as long as antennae, with sericeous-gleaming hairs below. *Abdomen* tending to be laterally compressed. *Hypopygium* of ♂ (text-fig. 19) differs from that of *pictipennis* in not having the outer apical part or angle of basal parts so markedly produced, less dense hair on basal parts and a differently shaped basal strut.

In the Transvaal and South African Museums.

Length of body: about 4-5½ mm.

Length of wing: about 4-5 mm.

Locality: Karoo: Willowmore (Brauns, 1 Nov. 1909). Koup Karoo: Meiringspoort (Mus. Exp., Oct. 1937).



TEXT-FIG. 19. Side view of hypopygium of ♂ *Tomomyza pallipes* Bezz.

Tomomyza philoxera n. sp.

This species is very near *pallipes*, but shows some distinct differences. Compared with the latter its chief characters are as follows:

Body predominantly black, somewhat shining; conical facial region predominantly shining black, only an elongated spot on each side near lower part yellowish, the entire sides of cone not yellowish as in *pallipes*; humeral angles much darker, more brownish; antennal joint 3 and proboscis dark brownish; pleurae on the whole much darker, dark castaneous or pitch brownish in the middle; hind margin of tergite 1 discally, a triangular, apical, discal spot on each of tergites 2-7 along mid-dorsal line, greater part of 7 in ♀, last sternite in ♀ and apical parts or angles of last sternite (tergal in position) of ♂ ivory yellowish to pale orange yellowish, the spots becoming slightly smaller apically; hind margins on sides of tergites 3 and 4 or 3-5 whitish or ivory yellowish, more conspicuous in ♂; legs on the whole much darker than in *pallipes*, predominantly castaneous brownish to piceous brownish, the upper faces of femora blackish, due to blackish scaling; front and middle tibiae and tarsi tending to be darker than in *pallipes*. *Vestiture* as in *pallipes*, the hairs above also dark or blackish; those on humeral angles, upper part of mesopleuron and on sides of tergite 1 also sericeous to silvery whitish; scale-like decumbent pile on sides of thorax also band-like and silvery; rest of fine pile on thorax composed of silvery and dark-coloured ones, the dark ones predominant, with scarcely or without any

distinct reddish golden or brownish-gleaming ones on disc as in *pallipes*; pruinescence the same; pile on abdomen predominantly black, appearing greyish, especially on sides, when viewed obliquely from behind, the pile absent from yellowish triangular spots above; scaling or pile on venter also blackish; scaling on legs mainly black, but some fine and sparse yellowish ones on basal parts of hind femora, sometimes with longish hairs on femora and tibiae as in *pallipes*. *Wings* as in the latter, somewhat greyish hyaline, iridescent; veins on the whole tending to be darker, dark blackish brown, even becoming black towards apex; apical bend of second vein tending to be deeper, more recurved; halteres dark brownish above, their knobs dark blackish brown above in front half and almost white in hinder half. *Head* with the interocular space on vertex in ♂, at narrowest part, a little less than 2 times distance between posterior ocelli (outer margins); space in ♀ about 2 times this same distance; frons as in *pallipes*; antennae with joint 1 longer than, or almost 2 times as long as, joint 2, joint 3 a little longer than 1 and 2 combined, more or less equally broad throughout in ♀, distinctly broader, more ovoid in ♂, also somewhat truncated apically as in preceding species; proboscis and palps as in *pallipes*. *Hypopygium* of ♂ (text-fig. 20) with the apical angles of last sternite, enclosing hypopygium, tending to be blunter than in the latter species; basal parts and beaked apical joints very similar, but the basal process of each basal part slightly longer, slightly denser hairs being present on apical region; basal strut shaped slightly differently (cf. text-figs. 19 and 20).

From 17 ♂♂ and 16 ♀♀ (types in the South African Museum).

Length of body: about $5\frac{1}{2}$ –8 mm.

Length of wing: about 5–6 mm.

Locality: Koup Karoo: Laingsburg Division (Mus.

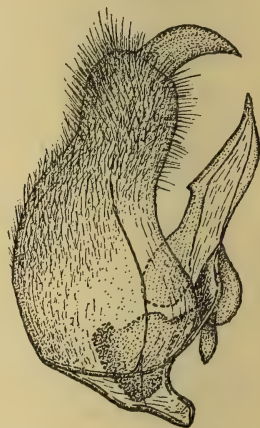
Exp., Feb. 1938) (types); Merweville (Mus. Exp., Oct. 1940); Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952); Koup Siding in the Laingsburg Div. (Mus. Exp., Oct. 1952).

Representatives of this species are more frequently found resting on bare stones or on the ground or sand between bushes.

Tomomyza karooana n. sp.

This species also resembles *pallipes* very closely, but differs in certain characters which appear to be of specific value. It differs from the latter species in the following respects:

Sides of thorax, from wings to humeral angles, usually distinctly reddish yellowish; sides or basal angles of scutellum constantly reddish yellow in both



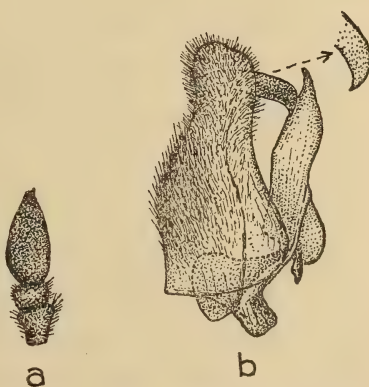
TEXT-FIG. 20. Side view of hypopygium of ♂ *Tomomyza philoxera* n. sp.

sexes; row of pale triangular discal spots on hind margins of tergites along mid-dorsal line slightly deeper yellowish, more ochreous to pale orange yellow, their basal parts distinctly more orange; entire hind margin of tergite 1 more reddish yellow and with almost entire tergite 7 and sternite 7 in ♀ yellowish; legs usually darker brownish yellow, the upper parts of femora brownish and lower parts more yellowish, the apical halves of hind femora more distinctly dark, due to dark scaling, and the tarsi, especially upper surfaces, slightly darker brownish; integument as in *pallipes*, but greater part of frons in ♂,



TEXT-FIG. 21. Wing of *Tomomyza karooana* n. sp.

however, dull. *Vestiture* with similar dark or blackish brown to black hairs on ocellar and frontal regions and on thorax and scutellum above, but without any such hairs on legs; pile and pruinescence in lateral band on thorax also gleaming sericeous whitish; fine, scale-like pile on disc of thorax in form of two faint submedial bands of very fine greyish sericeous ones, separated by broader bands of very fine reddish golden or brownish pile, more visible in certain lights, especially along midline; pile on scutellum and hairs on sides gleaming sericeous whitish as in *pallipes*; pile on abdomen above also predominantly dark or black, but that discally across bases of tergites appearing more dull greyish in certain lights; fine hairs on front part of frons in ♀ yellowish, more whitish in ♂; brilliantly silvery pruinescence on frons in ♂ more extensive, occupying almost the whole or entire frons; scaling and very fine and short hairs on legs predominantly dark on apical halves of femora and in form of intermixed dark and sericeous yellowish ones on rest of legs. *Wings* (text-fig. 21) vitreous hyaline, iridescent; veins very dark brownish, becoming slightly paler towards base; venation as in *pallipes* and *philoxera*; two submarginal cells present; halteres similar. *Head* with the interocular space in both sexes about, or a little



TEXT-FIG. 22. (a) Left antenna of ♂ of *Tomomyza karooana* n. sp. (b) Side view of hypopygium of ♂ of same species.

less than, or a little more than, 2 times distance between outer margins of posterior ocelli, though narrower in ♂ than in ♀; ocellar tubercle rather shallow in ♀; frons with the transverse depression almost absent in ♂, very shallow in ♀; apical part between antennal sockets slightly more depressed than in *pallipes*; antennae (text-fig. 22, *a*) with joint 1 very short, subequal in length to, or a little longer than, joint 2, sometimes even nearly 2 times as long as joint 2, joint 3 broadish, more leaf-shaped and more subtruncate apically in ♂; proboscis short, only about, or a little less than, 1 mm. long, on the whole shorter and stouter than in *pallipes*, finely striate below. *Hypopygium* of ♂ (text-fig. 22, *b*) differs from that of the two preceding species by the slight differences shown in the figures.

From 8 ♂♂ and 8 ♀♀ (types in the South African Museum).

Length of body: about 6–6½ mm.

Length of wing: about 5–5½ mm.

Locality: Nieuveld Karoo: Teekloof in the Nieuveld Escarpment (Mus. Exp., Nov. 1935); Beaufort West Dist. (Mus. Exp., Nov. 1935). Northern Karoo: Burghersdorp Dist. (Mus. Exp., Oct. 1935); Colesberg (Mus. Exp., Nov. 1939) (types); Steynsburg Dist. (Mus. Exp., 1935).

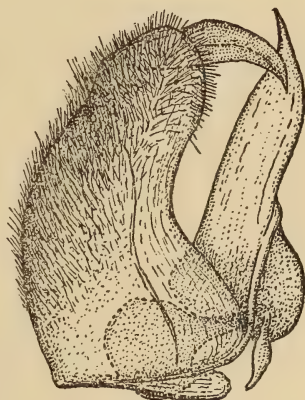
Tomomyza barbatula Bezz.

(Bezzi, p. 80, *Broteria* (Ser. Zool.), xx, fasc., ii, 1922.)

This species is represented by a single ♂ specimen in the collections of the late Dr. Brauns and by a ♀ specimen in the South African Museum. Its chief characters, as based on these two specimens, are as follows:

Body predominantly black, even sides of facial region black and humeral angles also black; antennal joint 3 very dark brownish, tending to be paler below; pteropleuron and sutural parts of metapleural region dark brownish; a central row of smallish apical spots on tergites 1–7 in ♂ and 1–5 in ♀ ivory whitish, their basal margins more orange yellowish, the spots towards apex of abdomen smaller; hind margins of tergites 2 and 3, and to a certain extent also 4, narrowly ivory whitish, the whitish extending down on each side to sides; legs entirely very dark blackish brown; integument of frons more or less shining, that on sides of facial region duller than in other species, very finely microsculptured, that on disc of thorax and scutellum dull, finely rugulose; integument of abdomen very finely and subscabrously ruguloso-punctate, but more or less shining, that of tergite 1 shining on sides, but transversely and finely striate discally; pleurae duller than in preceding species. *Vestiture* with black hairs only on ocellar and frontal regions, the rest of the vestiture on body in form of fine, decumbent, scale-like pile; longer pile on sides of thorax sericeous whitish; fine, somewhat sparse, scale-like ones on disc of thorax greyish silvery, that on each side of middle tinted slightly brownish or even gleaming slightly reddish golden, that on scutellum silvery; pile or hairs on sides of tergite 1

very poorly developed, not so dense and conspicuous as in preceding species; fine hairs or pile on abdomen above predominantly black, but that along a broadish central band above, especially in ♂, gleaming brilliantly silvery whitish in certain lights; silvery pruinescence along sides of frons, anteriorly on frons, in two spots on each side of facial region, as a small patch on each side in front of antennal sockets, as three patches behind each eye and as a narrowish band on sides of thorax, and to a fainter extent on pleurae; distinct and fine blackish hairs present across apical part of buccal rim; fine hairs on legs black, but the scaling on femora above gleaming pale sericeous yellowish. *Wings* greyish hyaline, iridescent; veins dark blackish brown; venation as in preceding species; two submarginal cells present; halteres brownish, their knobs with the hind margins above and lower parts whitish. *Head* with the interocular space on vertex in ♂ rather narrowish, relatively narrower than in the preceding three species, only a little broader than ocellar tubercle, the space in ♀ about 2 times distance between outer margins of posterior ocelli; frons with a slight transverse depression in front, more distinct in ♀, the integument in front of it smooth and shining medially; front part of frons in ♂ at least distinctly less tumid than in other species, the outer apical parts not produced; antennae with joint 1 about 2 times as long as 2, joint 3 broadest near base, somewhat obliquely truncate apically, ending in an upper inner apical style and an equally prominent inner lower process, the joint longer and less oval in ♀; proboscis short, finely striate below. *Abdomen* with tergite 1, especially in ♂, very well developed, longer than in any of the preceding species, not overlapped discally by the scutellum. *Hypopygium* of ♂ (text-fig. 23) with the hair on basal part very much less developed than in the preceding species, and with the outer apical parts of basal parts much shorter.



TEXT-FIG. 23. Side view of hypopygium of ♂ of *Tomomyza barbatula* Bezz.

In the Transvaal and South African Museums.

Length of body: about $5-5\frac{1}{2}$ mm.

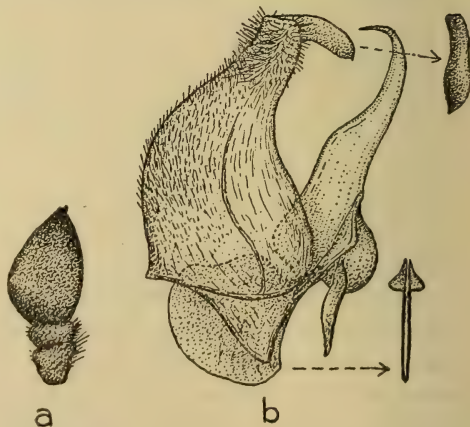
Length of wing: about $4-4\frac{1}{2}$ mm.

Locality: Karoo: Willowmore (Brauns, 1 Dec. 1920). Little Karoo: Calitzdorp-Schoemanspoort (Mus. Exp., 24 Oct. 1938).

Easily distinguished from all the preceding clear-winged species by its predominantly black body and black legs, black facial cone which is not smooth along its upper part, by the rather prominent first tergite, smaller yellowish spots on abdomen above and by the presence of fairly conspicuous silvery pile along mid-dorsal line of abdomen.

Tomomyza nitidula n. sp.

Body and legs entirely black, even facial region black, only hind margins of tergites 1-4 and to a certain extent also 5 and 6 ivory yellowish, these hind margins extending ring-like right round from side to side, the margins of tergites 1-4 usually more conspicuous; integument of greater part of body, especially head above, facial region, sides behind eyes, thorax and scutellum above, pleurae and sides of tergite 1 brilliantly shining, polished in appearance, even the abdomen more shining than in most species; integument of ocellar and frontal parts smooth, that of facial region shining, but with fine microsculpture; thorax and scutellum with very fine and sparse puncturation; pleurae predominantly smooth and polished; abdomen very finely ruguloso-punctate from tergite 2 to apex. *Vestiture* in form of black, bristly hairs on ocellar and frontal parts and fine, greyish white to sericeous whitish hairs on thorax and scutellum, upper part of mesopleuron and on sides of tergite 1, that on sides of thorax, on humeral angles, mesopleuron and on scutellum longest; fine, setae-like pile on abdomen black, denser and more conspicuous towards apex; silvery pruinescence present only on sides of facial region, more conspicuous in ♂, and as a longitudinal band behind eyes and feebly or faintly on metapleural part above hind coxae; fine hairs on legs very dark blackish brown or black, the fine spicules on tarsi below yellowish. *Wings* vitreous hyaline, iridescent; veins dark brownish to blackish brown; venation as in other species with uninfuscated wings; two submarginal cells present, the base of vein between these two cells, however, tending to be without a stump in some specimens; halteres with their apical parts and the knobs whitish or ivory white. *Head* with the interocular space on vertex in ♂ about 2.4 times distance between outer margins of posterior ocelli and in ♀ about 2.8 times; posterior ocelli more feebly developed in both sexes than in other species, the ocellar elevation very low and scarcely evident; frons with the transverse depression, especially in ♀, comparatively distinct, with the outer apical part prominent, tumid or knob-like, more conspicuous than in all the other known species except *anthracoides* and *guillarmodi*; conical apical part of face fairly sharp; antennae (text-fig. 24, *a* of ♂) with joint 1 very short, only a little longer than 2, joint 3 quite, or much longer than, 2 times as long as joints 1 and 2 combined, very broad and almost triangular or leaf-shaped in ♂, broadest just before middle, taper-



TEXT-FIG. 24. (a) Left antenna of ♂ *Tomomyza nitidula* n. sp. (b) Side view of hypopygium of ♂ of same species.

ing to a point, more rapidly so on lower side, less broad, but also leaf-shaped in ♀, in both sexes ending apically in a small style on inner aspect; proboscis short, only about, or a little more than, 1 mm. long; palps slender, much longer than antennae. *Hypopygium* of ♂ (text-fig. 24, *b*) differing from that of ♂♂ of other species in its slightly different shape, narrower neck-region of basal parts, the outer apical angles of which are not produced, and with much sparser hair on dorsum; aedeagus entirely different, shaped as shown in figures; beaked apical joints also differently shaped, less claw-shaped, less compressed (dorsal view to right); basal strut very much larger and broader than in the other species, provided at base with a process or ledge on each side.

From 2 ♂♂ and 6 ♀♀ (types in the South African Museum).

Length of body: about $4\frac{1}{3}$ –6 mm.

Length of wing: about $3\frac{1}{2}$ – $4\frac{1}{2}$ mm.

Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936) (types); Klipvlei in Garies Dist. (Mus. Exp., Nov. 1931).

Easily recognized and distinguished from all the other known species by its black, shining and polished body, entire and ring-like ivory whitish hind margins of tergites 1–4 at least, the distinctly more tumid and slightly produced outer apical angles of frons (only shared by *anthracoides* and *guillarmodi*), comparatively low ocellar tubercle and different hypopygium. The large ♂ specimen from Klipvlei appears to represent a slight variety, differing from the ♂-holotype in having the whitish pile on thorax and scutellum distinctly shorter, finer, less dense, and less conspicuous, the outer apical angles of frons slightly more tumid.

This species was caught on the sandy banks of a dry river course and also on flowering *Mesembryanthemums*.

Tomomyza anomala n. sp.

A unique ♂-specimen in the collections before me differs from all the other known species with unspotted wings and is characterized as follows:

Body mainly black; antennae brownish; legs yellowish, but the front and middle tibiae, apical parts of hind ones and apical parts of tarsi darkened; hind margin of tergite 1 and a central dorsal apical spot on hind margins of 2–4 (the latter very small) yellow; hind margins on sides of tergites 2 and 3 whitish pubescent; integument of abdomen somewhat shining. *Vestiture* with the erect hairs on head above and on thorax and scutellum less dense, sparser and shorter than in other species, those on head above and discally on thorax and scutellum dark or blackish, those on humeral angles, propleural parts and sides of scutellum silvery; decumbent scaling or pile on thorax also much sparser and shorter than in other species, mostly greyish or silvery in certain lights; silvery pruinescence on head above and pleurae much less conspicuous than in other forms; fine, decumbent scaling and hairs on abdomen above black, except

for silvery streak on each side across hind margins of tergites 2 and 3. *Wings* greyish hyaline, slightly less clear or vitreous hyaline than in other species; veins blackish brown; costal cell markedly short, not extending very much beyond middle of wing; second vein distinctly and markedly more recurved or looped apically than in other clear-winged species; middle cross vein only a little beyond middle of discoidal cell; anal cell narrower than in other species and very broadly open apically; axillary lobe much shorter, narrower and more reduced than in other species; two submarginal cells present; squamae pale, white-fringed; halteres dark brownish above. *Head* with the interocular space on vertex in ♂ about or nearly $2\frac{1}{2}$ times width of ocellar tubercle; face in front of antennae relatively short, only a little longer than antennal joints 1 and 2 combined; antennal joint 3 ovate, slightly compressed, about 2 times as long as broad, a little longer than joints 1 and 2 combined; proboscis confined to buccal cavity. *Abdomen* rather markedly laterally compressed.

The hypopygium of this unique specimen has not been dissected out for fear of damaging the abdomen.

The unique type specimen in the South African Museum.

Length of body: about $4\frac{1}{2}$ mm.

Length of wing: about 3.4 mm.

Locality: West Cape: Papendorp at the mouth of the Olifants River (Mus. Exp., Oct. 1950).

Plesiocera-group

Among the genera in which a characteristic facial extension or cone is developed the genus *Plesiocera* Macq. and the new genera *Conomyza*, *Coryprosopa*, *Prorostoma* and *Epacmoides*, described hereunder, appear to belong to a distinct and well-marked-off group, of which the several members show certain distinct characters which are more or less common to all of them and which give them a distinct facies by means of which they may be easily distinguished from other *Tomomyzinae*. The chief characters of this group are:

Body small to moderately large, usually somewhat elongate; abdomen elongate, tending to be cylindrical in ♂♂. *Vestiture* composed of not very dense, but nevertheless distinct, erect or bristly hairs and dense scaling on body and abdomen above, on front half of pleurae and on legs; a metanotal tuft usually present; scaling on sides of thorax in front of wings and on pleurae usually denser, the individual scales sometimes broader and flatter than the rest; that on abdomen above dense and conspicuous in all the forms; hairs denser, more tuft-like on sides just above front coxae, humeral part, along upper part of mesopleuron and on sides of tergite 1; hairs on disc of thorax sparser, the prealar, postalar and scutellar bristles present, well developed in all the genera; hairs on abdomen usually shortish, inconspicuous, long only in *Coryprosopa*. *Head* slightly broader across eyes than across thorax; eyes with the hind margin either only feebly sinuous, not indented, or slightly emarginate, or even subangularly

indented and rarely bisected; interocular space on vertex in ♂♂ about as broad as ocellar tubercle, in ♀♀ about, or a little more than, 2 times width of tubercle; antennae (text-figs. 27, 30, 31, 32 and 34) with joint 1 somewhat cup-shaped, broader and usually a little longer than joint 2, the latter usually transverse, joint 3 usually broad basally, narrowed apically, more or less club-shaped, the more slender apical part, however, never fine and very slender; facial extension formed by face alone, always distinct and projecting, conically pointed or convexly rounded, always well marked off from antennal insertions and anterior part of frons and upper genal parts; buccal cavity extending below head to about level of hind margins of eyes; proboscis shortish, more or less confined to buccal cavity, only apical part of labella sometimes slightly protruding; palps usually slender, not visibly jointed, the lower surface usually with fine and slender hairs; occiput not long, without any well-marked-off foveate depression behind ocellar tubercle, the depressed part there being merely the declivity to the gap between occipital lobes. *Wings* always with four open posterior cells; usually only two submarginal cells present (*Stomylomyia*, however, has three); alula and axillary lobe either much reduced or normally lobe-like; second vein originating some distance away from base of third vein, its apical part characteristically bisinuous, bending forwards and then backwards before ending in costal margin; middle cross vein never very much beyond middle of discoidal cell. *Legs* always with some distinct, or a row of, spines on outer lower aspect of hind femora, sometimes with some spines also on inner lower aspect in some ♂♂, and sometimes also with spines on front and middle femora; tibiae always with distinct and conspicuous spicules and with longish apical spurs on middle and hind ones; front tarsi usually slightly modified, sometimes distinctly longer than front tibiae; claws curved down apically, the front ones sometimes much reduced; pulvilli usually well developed. *Hypopygium* of ♂♂ variable, shaped as shown in text-figures 26-31 and 33-35.

From the *Pantostomus* and *Tomomyza*-group, this group of genera differs in not having the integument of body above conspicuously punctured or sculptured; abdomen not humped or foveately depressed submedially on middle tergites; shorter occiput, without a foveate, occipital depression behind ocellar tubercle; ocellar tubercle not elongated and ridge-like; facial extension composed of face alone and not of a protruding anterior frontal part and antennal sockets; antennal joint 3 differently shaped (cf. text-figs. 8-11, 13, 14, 16, 18, 22 and 24, *a*, and 27, 30-2 and 34, *a*); second vein in wings much less recurved apically; legs with spines on at least hind femora and well-developed spicules and spurs on middle and hind tibiae; and in having an entirely different type of hypopygium (cf. text-figures).

The various genera of this group are distinguished and separated by the characters given in the key to the genera at the beginning of this volume and more fully under the respective genera dealt with separately in the following pages. Probably also belonging to this group is the American genus *Epacmus* which Osten Sacken erected in 1887 to replace the preoccupied *Leptochilus* of Loew.

Gen. *Plesiocera* Macq.

(Macquart, p. 82, *Dipt. Exot.*, ii, 1840; Bezzi, p. 298, *Konowia*, iv, 1925; Engel, p. 390, *Die Fliegen d. Pal. Reg.*, lief. 91 (Bombyliidae), 1935; Austen, p. 93, *Bombyliidae of Palestine*, 1937.)

The identity of this genus is not quite clear from the various generic and specific descriptions in the literature at my disposal. From the descriptions of the various Palaearctic and North African species, allocated to it, it is quite evident that this genus is at present composed of disparate elements. The fact that the North American genus *Epacmus* Ost.-Sack. and the North African, or South Palaearctic, genus *Stomylomyia* Big. have both been placed as synonyms of *Plesiocera* by Engel has rendered this confusion still greater. Macquart in 1840 described a species *algira* from Algeria on which he based his genus *Plesiocera* s. str. According to the more detailed specific description of this species given by Engel (p. 391, loc. cit.) it is quite evident that it differs from *flavifrons* Beck., the only other known Palaearctic species which appears to belong to *Plesiocera* s. str., in having the interocular space in ♂ broader and in having the spicules on the tibiae more strongly developed, etc. The other five Palaearctic species all have three submarginal cells in the wings, and have been referred to *Stomylomyia* by Paramonow (p. 30 (92), *Acad. d. Sc. d. l'Ukraine*, xi, livr., 2 (Trav. Mus. Zool., Kiev, No. 6), 1929). In 1922 Bezzi (pp. 81-3, *Broteria* (Ser. Zool.), xx, fasc., ii) described two South African species, *integra* and *biumbonata*, which he also referred to *Plesiocera*. From his descriptions and from representatives of both species in the collections before me, it is, however, evident that they cannot be retained in *Plesiocera* s. str., as based on *algira*, and two separate new genera (*Prorostoma* and *Epacmoides*) have been erected in this memoir to contain them. In the collections before me there are, however, 7 new species from South Africa which have only two submarginal cells in the wings and other wing-characters which are almost identical with those of *algira* and *flavifrons*. As no material of the latter two Palaearctic species is at my disposal, it is very difficult to state whether the South African forms are generically identical with *algira* in the other details which are given here in my generic description of *Plesiocera*. Notwithstanding the fact that in the South African species the hind margin of the eyes is not markedly or subangularly indented and that the front claws are markedly reduced, I am nevertheless referring these species provisionally to the Palaearctic genus *Plesiocera* s. str. until such a time as a further study of both the Palaearctic and Ethiopian species will determine the true identity of this genus. The characters of this genus, as based solely on the South African forms, are as follows:

Body more or less elongate; abdomen much longer than broad, tending to be cylindrical in ♂♂, sometimes even laterally compressed along its middle part. *Vestiture* in form of dense, flattened, lanceolate, or even distinctly broadened, scaling and erect bristly hairs, the scaling densely developed on body above, front half of pleurae, abdomen and legs, and in some forms also on frons; that

in a band on each side of thorax usually conspicuously cretaceous or pearly whitish like that on pleurae and abdomen below, but sometimes conspicuously ochreous yellowish; hairs or bristly hairs on body comparatively sparse or only moderately dense; those on head above, the fine, short and very dense ones on occiput and the hairs on thorax above visibly evident; those across propleural part from above front coxae to humeral angles, the dense tuft-like ones along upper part of mesopleuron and on sides of tergite 1 longer, denser and distinctly more conspicuous; those across hind margins of tergites short, fine and inconspicuous, the scales being predominant; prealar, postalar and scutellar bristles well developed and conspicuous; middle part of pleurae and the metapleurae usually devoid of hairs, though a tuft is present on metanotum;



TEXT-FIG. 25. (a) Occipital region of ♂ of *Plesiocera psammophila* n. sp. (b) Occipital region of ♂ of *Conomyza semirufella* n. gen. and n. sp.

facial cone in some forms also tends to be bare. *Head* broad, broader across eyes than across broadest part of thorax; eyes large, convex, separated; interocular space on vertex in ♂♂ about as broad ocellar tubercle, in ♀♀ about or a little less than, or even a little more than, 2 times width of tubercle; hind margin of eyes (text-fig. 26, a) not indented, not subangularly or deeply emarginate, not bisected, the margin being only slightly or broadly sinuous; upper anterior facets in eyes in ♂♂ scarcely, or only very slightly, coarser than rest; occiput (text-fig. 25, a) well developed, broadish, the sulcation deep and narrowish, the two lobes almost touching or very near together apically, the sulcation narrower than width of ocellar tubercle, the entire occiput, however, very much shorter than in *Pantostomus* and *Tomomyza* and a conspicuous, medial, foveate depression behind ocellar tubercle wanting; three ocelli situated on a distinct tubercle; frons broader in ♀♀, the inner margins of eyes in ♀♀ more gradually diverging anteriorly, with a faint central depression sometimes present either in basal half or towards middle, more distinct in ♀♀, without any deep or conspicuous transverse depression anteriorly, but with the apical part, just behind antennae, tending to be very slightly convex; integument of frons, especially in ♀♀, tending to be slightly shining; facial region in front of antennae distinctly and sometimes markedly conically produced or prominent, its apical part either sharply pointed or slightly rounded, this facial part more or less distinctly marked off from antennal region and upper genal part by a depression or groove-like depression; genae only represented on sides of facial cone,

leading into a groove; buccal cavity long, broadish and deep; antennae (text-fig. 27, *a*) with the first joints close together, not situated in very distinct and conspicuous sockets or fossae as in *Tomomyza*-group, usually short, tending to be cup-like, usually longer and broader than second joints, the latter transverse, joint 3 the longest, usually longer than 1 and 2 combined, broadest at base or in basal half, from there either gradually narrowed apically or more rapidly narrowed on lower side, the apical part sometimes appearing slender, the joint sometimes slightly laterally compressed, ending apically in a distinct shortish or blunt style or joint, which itself ends in a fine hair-like stylet or even additional hairs; proboscis shortish, more or less confined to buccal cavity, the labellar lobes sometimes sparsely spinulate; palps slender, covered with fine, longish hairs on lower side, without any separate joints discernible. *Wings* usually glassy hyaline, vitreous hyaline or greyish hyaline, not infuscated even along front border in the known species; a distinct basal comb wanting; only two submarginal cells present; four posterior cells all open; axillary lobe narrowish, not lobe-like and broad; alula reduced or much reduced; second vein originating some distance away from base of third vein, about halfway to or nearer middle cross vein, usually obliquely, rarely perpendicularly, the apical part characteristically sinuous, at first bent forwards subangularly or kink-like and then roundly backwards before passing into margin; middle cross vein at about, or a little before or beyond, middle of discoidal cell. *Abdomen* with the extreme inflexed sides of tergites overlapping the sternites, in ♂♂ entirely hiding the latter; last sternite in ♂♂ with the lateral apical angles somewhat prominent or angular, sometimes distinctly angularly produced, the hind margin of this sternite tending to be bisinuate. *Legs* with distinct bristly hairs developed practically only on hind coxae; front and middle femora usually without any spines or spinules; hind ones with a few smallish ones, or at least with 1 or 2 distinct spines on lower apical part, in some ♂♂ with a few or a row of spines on inner lower aspect; tibiae with the spicules and spurs on middle and hind ones, especially the latter, well developed, those on front tibiae usually vestigial or wanting, rarely conspicuous; tarsi, especially front ones, at least as long as tibiae, usually a little longer, in ♂♂ usually much longer than tibiae; front tarsi, however, slightly modified in both sexes, relatively shorter and more hairy than the others and usually without spicules; claws with the front ones usually much reduced or almost vestigial; pulvilli well developed. *Hypopygium* of ♂♂ (text-figs. 26-9) usually subject to slight torsion, situated on side opposite last sternite, usually visible at end of abdomen; basal part divided dorsally into two separate parts by a suture or impressed suture, usually covered with fine hairs above, each basal part with a more or less well-marked-off apical part and the outer apical part or angle usually produced or angularly prominent; beaked apical joints usually elongate and curved as shown in the dorsal views between the figures, usually ending apically in a sharp point or upturned spine, sometimes with a row of spinules or spinule-like hairs along outer aspect nearer apical part; aedeagus with the apical part usually slender, often directed

slightly upwards, the aedeagal part produced basally on dorsal aspect into a distinct, lobe-like or tongue-like process on each side (see figures) which is joined on to lateral ramus on each side, the aedeagus also with a distinct ventral process, formed as a medial, apically directed structure by the fusion and coalescence of each lateral ramus, the apical part of this process assuming various and complex shapes as shown in both side and ventral views; lateral and basal struts as shown in figures, the latter without a lateral shelf-like flange, but a short process on each side basally may be present.

From *Pantostomus* and *Tomomyza* this genus differs by the shorter and less developed occiput, non-punctured thorax, scutellum and abdomen, entirely different type of third antennal joint, non-socket-like antennal insertions, less raised front part of frons, very much less looped apical end of second vein, different type of hypopygium in ♂♂, etc. From the Palaearctic *Plesiocera* s. str., as defined by Engel (p. 390, loc. cit.), it appears to differ in not having the hind margin of eyes subangularly or distinctly indented, in having non-spiculate front tibiae, very much reduced front claws and a tuft of hairs on each side metanotum.

The genus *Stomylomyia* Big. (p. xxxi, Bull. 9, ii, Ann. Soc. Ent. Fr., vii, 1887), which Engel (p. 390, loc. cit.) has relegated to the position of a subgenus of *Plesiocera* and of which I have only seen one species (*europaea* Lw.), differs from *Plesiocera* s. str. in having three submarginal cells in the wings, a tuft of hairs on the metanotum, longer hairs on abdomen, denser hairs on body, well-developed spicules on front tibiae, a more distinct indentation in hind margin of eye, etc.

Key to the known South African species of *Plesiocera*

Males

1. (a) Conical facial region, head below and antennal joints 1 and 2 entirely or predominantly black; eyes usually darker, dark brownish or blackish brown; scaling on each side of thorax conspicuously cretaceous or chalky whitish, that on abdomen above either in form of two bands of brownish scaling separated by a broadish central band of whitish ones or, if dull ochreous yellowish above, sides and venter and sides of thorax not so contrastingly cretaceous whitish; apical angles of last sternite blunter; hind femora with fewer spines below, usually without any or with fewer than 5 or 7; wings more glassy or vitreous hyaline. 2
- (b) Conical facial part, head below and antennal joints 1 and 2 below entirely very pale yellowish, bony yellowish to ivory yellowish; eyes usually much paler, more greyish greenish or yellowish; scaling on thorax ochreous yellowish on sides and along middle, separated on each side submedially by a cretaceous white longitudinal band, that on abdomen above ochreous yellowish and that on sides and on venter conspicuously and contrastingly cretaceous whitish like that on pleurae, sometimes with a narrowish white line on abdomen above as well; apical angles of last sternite more angular and more distinctly produced; hind femora with more numerous spines below, at least 5-7 on inner lower aspect; wings distinctly more greyish or greyish hyaline.
♂ *philerema* n. sp. (p. 111)
2. (a) Abdomen predominantly black, hind margins of tergites not red or reddish discally even if ventral part is slightly reddish; hairs on ocellar tubercle, base of frons, disc of thorax, medially on tergite 1 and across hind margins of 6 and 7 and across hind margin of last sternite very dark, blackish brown to black; three broadish bands of scaling on

disc of thorax and two broadish submedial bands on abdomen above brownish to reddish or sienna brownish; rest of scaling on thorax and abdomen above cretaceous or chalky whitish; costal and first veins and even veins at base of wings dark or blackish brown; knobs of halteres tending to be darker, more brownish above; scutellum tumid or inflated in appearance, its apex tending to be smooth and shining.

♂ *psammophila* n. sp. (p. 102)

- (b) Abdomen more extensively red or reddish below, hind margins of tergites, even discally above, distinctly or even broadly reddish; hairs on ocellar tubercle, disc of thorax, tergite 1 medially, across hind margins of 6 and 7 and predominantly on last sternite pale, more yellowish or sericeous yellowish; scaling on disc of thorax and on greater part of abdomen above slightly paler, more dull ochreous yellowish or ochreous; costal and first veins and even basal parts of veins in wings distinctly more yellowish; knobs of halteres paler yellowish or yellowish white to white; scutellum less distinctly tumid, its apex dull, covered with scaling. 3
3. (a) Conical facial region distinctly less projecting, more rounded, its upper margin, in profile, almost perpendicular to axis of body, its apex blunter; hinder part of metapleural part, coxae and greater part of femora dark or blackish; abdomen, if predominantly reddish, without a well-defined, broad, central, black band above; scaling on frons denser, more conspicuously cretaceous whitish; fine pubescence on facial cone silvery whitish, denser; cretaceous white scaling on sides of thorax in front of wings denser, more extensive, more conspicuous; scaling on disc of thorax, scutellum and abdomen above more uniformly dull ochreous yellowish; front claws more reduced in relation to middle ones; smaller forms, about 4–5 mm. long, with wings about 3½–4 mm. long. 4
- (b) Conical facial region distinctly more projecting, more conical, in profile more horizontal to axis of body, its apex more pointed; hinder part of metapleural part, middle trochanters, hind coxae and trochanters and more than apical parts of middle and hind femora more extensively reddish; greater ventral part and sides of abdomen reddish, only a well-defined band on abdomen above black; scaling on frons less dense, gleaming more pale sericeous yellowish; fine pubescence on facial cone less dense, less conspicuous, sericeous whitish; cretaceous white scaling on sides of thorax narrower; scaling on disc of thorax with a tendency to show two submedial whitish bands, that on sides of scutellum conspicuously chalky whitish; front claws only slightly smaller than middle ones; larger form, about 6 mm. long, with wings about 5½ mm. long.

♂ *rufiventris* n. sp. (p. 109)

4. (a) Greater part of abdomen above and greater part of all the femora black.
- ♂ *curvistoma* n. sp. (p. 104)
- (b) Abdomen more extensively reddish, even the dorsum reddish, and both middle and hind femora tending to be more reddish or reddish brown.
- ♂ slight var. of *curvistoma* n. sp. (p. 104)

Females

1. (a) Conical facial cone, head below and antennal joints 1 and 2 below entirely or predominantly black; scaling on sides of thorax in front of wings conspicuously cretaceous or chalky white; wings always distinctly glassy or vitreous hyaline; scutellum sometimes tending to be tumid or inflated. 2
- (b) Conical facial cone, head below and sometimes also antennal joints 1 and 2 below entirely very pale yellowish, bony to ivory yellowish; scaling on sides of thorax more yellowish or ochreous yellowish and, if whitish, facial cone is yellow; wings sometimes more greyish or greyish hyaline; scutellum more flattened, rarely tumid. 5
2. (a) Abdomen with the entire venter, sides of tergites and all the hind margins of tergites (sometimes broadly) more extensively reddish; entire hind femora and more than apical part of middle ones, or entire middle ones, entirely or predominantly yellowish red; hairs on head above, thorax above and across hind margins of all the tergites much paler, yellowish to golden; scaling above on the whole more uniformly dull ochreous yellowish

to golden brownish, but that on sides of thorax and on scutellum more contrastingly and conspicuously cretaceous white; scutellum more flattened, its apical part less tumid, dull, not polished; costal and first veins and bases of other veins in wings more brownish; knobs of halteres paler above. 3

- (b) Abdomen predominantly black and, if extensively reddish on venter, hind margins of tergites not or only very narrowly and obscurely reddish (excepting only 6 and 7); hind femora entirely dark or black or only slightly reddened below; hairs on disc of thorax, across hind margins of tergites, especially on 6 and 7, tending to be very dark or black; scaling on thorax in form of whitish and brownish bands; scutellum somewhat tumid, its apical part tending to be smooth and polished; veins in wings slightly darker, more blackish brown; knobs of halteres more yellowish brownish to brown above. 4

- 3. (a) Conical facial part distinctly less projecting, more rounded, its upper margin, in profile, more rounded or curved to main axis of body; interocular space relatively narrower, only or scarcely twice distance between posterior ocelli; antennal joint 3 short, rapidly narrowed to a point, no slender apical part indicated; abdomen with more black above, the black not tending to be present only as a row of discal spots; middle femora darkened basally or in basal halves and hind femora entirely yellowish; anal cell more or very broadly open; slightly smaller form, about 4-5 mm. long, with wings about 3½-4 mm. long. ♀ *curvistoma* n. sp. (p. 104)

- (b) Conical facial part more conically projecting, more horizontal to main axis of body, its upper margin, in profile, more sloping at an angle; interocular space slightly broader, a little more than twice distance between posterior ocelli; antennal joint 3 at first rapidly narrowed and then more gradually, a more slender apical part thus present; abdomen more extensively reddish, the black more or less confined to disc as a row of broadish black spots; middle femora almost entirely yellowish and yellowish hind ones blackened on outer surface near apex; anal cell much more narrowed apically; slightly larger form, about 6-7 mm. long, with wings about 5½-6¼ mm. long. ♀ *rufiventris* n. sp. (p. 109)

- 4. (a) Abdomen predominantly or almost entirely black, the venter less extensively reddish and only sides of tergite 1, last sternite and hind margin of last tergite constantly and distinctly reddish; hairs on ocellar tubercle and base of frons distinctly darker, more blackish, and those on disc of thorax also more blackish. ♀ *psammophila* n. sp. (p. 102)

- (b) Abdomen with the red below distinctly more extensive, hind margins on sides of tergites also distinctly reddish, also with distinct roundish reddish spots or infusions on sides of 2-6, nearer their hind margins; hairs on tubercle and frons more brownish, brownish golden or more golden yellowish than blackish, and those on disc of thorax appearing more brownish or blackish brown in certain lights. ♀ *psammophila* var. *rufisticta* n. (p. 104)

- 5. (a) Frons comparatively narrower, less broad anteriorly, its length from front ocellus to antennae very much longer than its width in front, its surface less convex, sometimes slightly depressed in front of ocellus; front tibiae without any distinct spicules or spurs; front claws more reduced, smaller than half the size of middle ones; antennal joint 3 relatively much shorter, its slender apical part very much shorter, the joint much shorter than conical facial part; the latter entirely yellowish, its hairs very fine and short; scutellum more flattened; hairs on disc of thorax distinctly longer, sparser, and bristles on thorax and scutellum also longer; white scaling on abdomen above in form of a broad lateral band on each side or of lateral bands and a central band; smaller forms, about 4-7 mm. long, with wings about 3½-5 mm. long. 6

- (b) Frons comparatively much broader, broader anteriorly, its length from front ocellus to antennae scarcely, or only a little, longer than its width in front, its surface slightly more convex, especially anteriorly, without any depression; front tibiae with small, but distinct, spicules and spurs; front claws less reduced, about half size of middle ones; antennal joint 3 relatively longer, its slender apical part much longer, the joint subequal in length to facial cone; the latter more orange or brownish yellow, with a black patch above under antennae, its hairs distinctly longer and more conspicuous; scutellum more convex or tumid; hairs on thorax distinctly denser and shorter and bristles on thorax

and scutellum also shorter; white scaling on abdomen above in form of a broad lateral band below on each side and girdle-like bands across hind margins of tergites; larger species, about $8\frac{1}{2}$ mm. long, with wings about 7 mm. long.

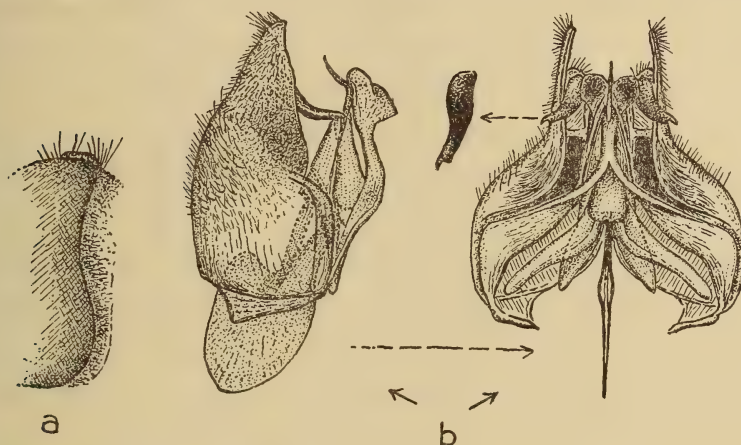
♀ *rhodesiensis* n. sp. (p. 106)

6. (a) Conical facial part more conically projecting, more horizontal to main axis of body, less rounded, the entire cone, buccal rim, head below and antennal joints 1 and 2 below yellow; coxae yellowish and venter more extensively or entirely pale yellowish red; interocular space at least twice distance between outer margins of posterior ocelli; frons dull, covered with denser hairs and scaling, without a silvery tuft on sides anteriorly; hairs on thorax and scutellum discally predominantly dark or blackish; scaling on thorax above with more ochreous or yellowish ones and white scaling on abdomen above in form of conspicuous lateral, or central and lateral, bands; wings slightly more greyish hyaline. 7
- (b) Conical facial part distinctly less projecting, more rounded, in profile more rounded dorsally to main axis, with only the cone or apical part of it and genal parts of buccal rim yellowish; coxae dark and venter less extensively yellowish red; interocular space relatively narrower, distinctly much less than twice distance between outer margins of posterior ocelli; frons more shining, with much sparser hairs and with a dense, silvery tuft on each side anteriorly; hairs on thorax and scutellum yellowish or reddish golden; scaling on thorax with more whitish ones and whitish scaling on abdomen not in very conspicuous bands; wings slightly more hyaline. ♀ *flavilabris* n. sp. (p. 108)
7. (a) Scutellum, pleurae, coxae, greater part of femora and greater part of abdomen above black, the hind margins of tergites not reddish; scaling on sides of thorax ochreous yellowish, that on abdomen above also ochreous yellowish, but with a narrowish central line of white scaling; facial cone less prominent, not so sharply pointed. ♀ *philerema* n. sp. (p. 111)
- (b) Hind margin of scutellum, propleural part, metapleural part, coxae, anterior and middle femora, greater part of abdomen below and the broadish sides reddish or reddish yellow, the hind margins of tergites, even discally above, distinctly reddish; scaling on each side of thorax distinctly more whitish, that on abdomen above uniformly ochreous yellowish, without a central whitish line; facial cone distinctly more sharply pointed apically. ♀ *pernotata* n. sp. (p. 113)

Plesiocera psammophila n. sp.

Body, including scutellum, predominantly black; edge of rim of buccal cavity tending to be yellowish; humeral angle, hind edge of metapleural part, hind margin or a spot on each side of tergite 1, extreme sides of tergites below, especially in ♂, hind margin of tergite 7 in ♀, narrow hind margins of sternites and the entire last sternite in ♀ yellowish red to reddish; legs with the coxae black, trochanters tending to be yellowish red, front femora to beyond middle, at least basal halves of middle femora and almost entire hind ones black, the apical parts of femora and sometimes lower surfaces of hind ones yellowish; tibiae yellowish, the hind ones tending to be darkened apically; basal parts of front and middle tarsi yellowish to a variable extent, the hind ones tending to be entirely darkened. *Vestiture* with the hairs on ocellar tubercle, base of frons, disc of thorax, a few transversely across hind margin on sides of tergite 1, the scarcely distinct shortish ones on abdomen above, longer and more distinct ones across hind margins of 6 and 7 in ♀ and also those across hind margins of 6 and 7 and last sternite in ♂ very dark or black; prealar, postalar and scutellar bristles reddish brown or reddish, gleaming reddish golden to brownish golden; some of the bristly hairs on sides of thorax in front of wings also gleaming brownish

golden in certain lights; hairs on frons in front, across front part of pleural part, from front coxae to humeral angle, on mesopleuron and on sides of tergite 1 whitish; dense and short hairs on occiput also whitish; fine and sparse ones on facial cone gleaming sericeous yellowish; sparse hairs on venter and those across hind margins of last two sternites in ♀ sericeous yellowish to golden yellowish; bristly hairs on last coxae sericeous whitish; scaling on body rather dense, that on pleurae, in a band on each side of thorax before wings and on venter denser and cretaceous white; some cretaceous whitish scales also on front



TEXT-FIG. 26. (a) Hind margin of eye of *Plesiocera psammophila* n. sp. (b) Side and ventral views of hypopygium of ♂ of same species.

part of frons and in a narrowish, central band on abdomen above, especially in ♂; scaling on thorax above in more or less three longitudinal bands of brownish or ochreous brownish ones separated, especially anteriorly, by whitish scaling; some ochreous brownish to sienna brownish scaling also on disc of scutellum and in two broadish, submedial bands on abdomen above, slightly broader in ♀; whitish scaling on abdomen, apart from those in broad lateral bands and dorsal band, also across hind margins of tergites; scaling on legs predominantly cretaceous white, becoming slightly yellowish apically above on hind femora, tending to be dull yellowish or even dark on hind tibiae. *Wings* vitreous hyaline, iridescent, the base and costal cell showing a slight whitish or yellowish whitish subopacity; veins dark, blackish brown to black, only the base of costal vein and the false vein yellowish; second vein with an angular kink in apical part, its apical bend not very deep; squamae subopaquely whitish, their fringe white; halteres yellowish, the upper apical part of knobs darkened or even brownish. *Head* with the hind margin of eyes (text-fig. 26, a) distinctly not indented or emarginate, only very feebly sinuous; eyes separated above in ♂ by width of ocellar tubercle, in ♀ about, or very little less than, 2 times width of tubercle; frons scarcely or only feebly centrally depressed towards apical part, the base being more convex; facial cone well developed,

produced and conically prominent, distinctly pointed; antennae with joint 1 short, but distinctly broader and shorter than 2, joint 3 longer than 1 and 2 combined, broadened basally, appearing slightly knob-like at base, more rapidly narrowed apically on lower side, but on the whole gradually passing into the more slender apical part, ending apically in a short, bluntish style which itself ends in a hair-like stylet; proboscis a little less than 1 mm. long, with only apices of labella projecting slightly beyond apex of buccal cavity. *Scutellum* tending to be distinctly tumid or inflated in appearance, its apical part smooth and polished, somewhat tumidly rounded. *Legs* usually without any spines on front and middle femora below, sometimes, however, with a few minute and insignificant ones on middle ones below; hind femora with a few small spines on outer apical aspect and in ♂ with a few small ones also on inner lower aspect, the spines in ♀ less developed and in both sexes an outer apical spine, or sometimes two spines, longer and more conspicuous; tibiae without any visible, or with only vestigial, spicules and spurs on front ones; front claws very much reduced in both sexes. *Hypopygium* of ♂ (text-fig. 26, *b*) with the outer apical part of basal parts much produced and angularly pointed; beaked apical joints elongate, narrowish, shaped as shown in figures, especially dorsal view in middle; aedeagus with the apical part slender and bent upwards; ventral aedeagal process well developed, broadened apically into a rounded, shell-like process on each side of a central keel-like or carinate process; basal strut (see side view) with a deep sinuosity along its dorsal margin.

From 36 ♂♂ and 47 ♀♀ (types in the South African Museum).

Length of body: about $3\frac{1}{2}$ – $6\frac{1}{2}$ mm.

Length of wing: about 3–5 mm.

Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936).

This species is variable in size. A long series also shows slight differences in the extent of the red, especially on hind legs. Some ♀♀ have the greater part of the middle femora and the greater part of the lower surfaces of hind ones reddish yellow. Six other ♀♀, however, differ from the more typical forms in having the venter more extensively reddish, the reddish hind margins of the sternites very much broader, the hind margins of tergites on sides also reddish and with distinct and often conspicuous, rounded, reddish spots or infusions on sides of tergites 2–6; hairs on ocellar tubercle and base of frons apparently paler, more brownish than blackish. Some of these ♀♀ are also larger, reaching a length of about 8 mm. and having a wing-length of about 6 mm. In view of the absence of ♂♂ and the tendency for ♀♀ of even the typical form to vary slightly, I refer these ♀♀ only to a variety: *psammophila* var. *rufisticta* n.

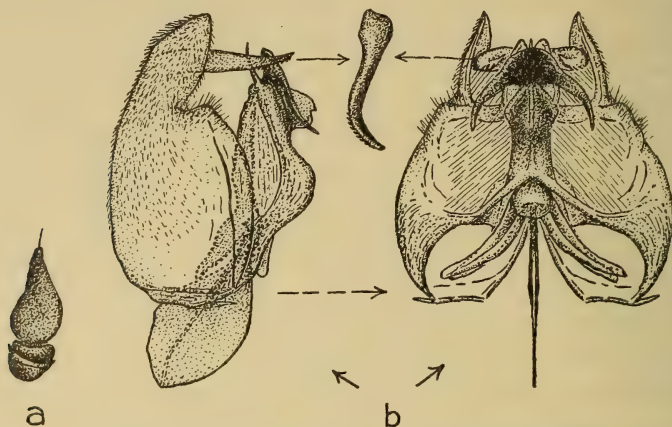
Representatives of this species are usually found settling on the warm sand or on the ground between Karoo bushes.

Plesiocera curvistoma n. sp.

Body, including antennae and scutellum, predominantly black; humeral angle, narrow hind margin of metapleural plate, postalar calli to a certain

extent, hind margins of tergites, sides of tergites to a variable extent and broad hind margins of sternites yellowish red to pale reddish; greater part of venter and broad sides of tergites usually predominantly reddish or yellowish red; last sternite in ♂ reddish to a variable extent, but sometimes with only its margins or sides reddish; legs with the femora in ♂ darkened or blackened to beyond middle; apical parts of front and middle ones in ♂ and extreme apices of hind ones yellowish; greater part of front femora to beyond middle and bases or basal halves of middle ones darkened or blackish to a variable extent in ♀, the apical parts of front and middle femora and almost entire hind ones in ♀ being yellowish red; tibiae and at least basal halves of tarsi in both sexes pale yellowish reddish, the apical parts darkened and the spines and spicules on legs black. *Vestiture* with the hairs comparatively sparse; those on ocellar tubercle and frons whitish sericeous in ♂, more yellowish to pale golden in ♀; hair on thorax above also slightly more yellowish in ♀; prealar, postalar and scutellar bristles sericeous yellowish, gleaming distinctly more reddish golden in ♀; tufts on propleural part and on sides of tergite 1 whitish in both sexes; fine pubescence on facial cone towards apex silvery whitish; that on occiput sericeous yellowish in ♀, appearing whiter and sometimes more silvery in ♂; hairs across hind margins of tergites short, more distinct on last two tergites, sericeous yellowish, longer in ♀; scaling well developed, with conspicuous, dense, flattened, cretaceous whitish ones on frons in ♂; chalky or cretaceous whitish scaling also present in a conspicuous band on sides of thorax in front of wings, on front part of pleurae, especially sternopleuron, sides of tergite 1 and on coxae; rest of scaling on head behind eyes, on pleurae and on legs whitish; that on thorax, scutellum and abdomen above, especially in ♂, dull yellowish to ochreous yellowish, that across hind margins of tergites tending to be paler, especially in ♀; that on abdomen below paler than above, more cream-coloured to whitish; scaling on upper surfaces of hind femora at least tinted more yellowish. *Wings* vitreous hyaline, iridescent; veins very dark brownish to blackish brown, base of costal vein, false vein, basal part of first and base of wings distinctly yellowish; middle cross vein just before, or at about, middle of discoidal cell; squamae subopaquely whitish or yellowish white, their fringe almost absent and where visible whitish; halteres pale yellowish, the knobs very pale to almost white. *Head* with the hind margin of eyes only slightly sinuous; interocular space on vertex in ♂ as broad as ocellar tubercle, in ♀ a little less than 2 times width of tubercle; frons in ♀ tending to be more or less shiny in basal half, shallowly depressed in centre at about middle, this depression also visible under the scaling in ♂; facial cone not so prominently conical as in *psammophila*, but when viewed from side more perpendicular, its curved upper margin appearing continuous with curvature of frons, the buccal cavity thus more horizontal in position, the facial cone, in profile, thus more rounded and bluntly parrot-beak-like than in *psammophila*; antennae comparatively short, with joint 1 very short, broader, but scarcely longer, than very short, transverse joint 2, joint 3 (text-fig. 27, a) relatively short, more or less rapidly narrowed apically from a broad

base, without any distinct slender apical part and with the basal part below slightly prominent; proboscis short and stoutish, confined to buccal cavity. *Legs* without any spines on front and middle femora and with only a very few, 2 or 3, inconspicuous, short and fine ones in apical outer aspect on hind ones; tibiae without any visible spicules and spurs on front ones; claws of front tarsi much reduced and vestigial. *Hypopygium* of ♂ (text-fig. 27, *b*) with the apical part of basal part narrowed and projecting on outer side; beaked apical joints elongate, almost cylindrical, the apical part curved inwards (see dorsal view



TEXT-FIG. 27. (*a*) Right antenna (inner side) of ♂ *Plesiocera curvistoma* n. sp. (*b*) Side and ventral views of hypopygium of ♂ of same species.

between the two figures), provided with a row of fine spinules on the outer apical part; aedeagus with the apical part slender and spine-like, the aedeagal part produced basally on dorsal aspect into a pointed lobe (shown in dotted outline in left-hand figure); ventral aedeagal process characteristic, shaped as shown from a side view in left-hand figure and a ventral view in right-hand figure.

From 15 ♂♂ and 16 ♀♀ (types in the South African Museum).

Length of body: about 4–5 mm.

Length of wing: about $3\frac{1}{2}$ –4 mm.

Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936) (types); Kamieskroon-Springbok (Mus. Exp., Oct. 1939).

Easily recognized by the slightly curved-down facial cone, the shortish antennae, the dense white scaling on frons in ♂ and the very conspicuous band of cretaceous whitish scaling on each side of thorax.

Plesiocera rhodesiensis n. sp.

Body predominantly black; facial cone orange to brownish yellowish, the medial dorsal part under antennae blackish; buccal rim ivory yellowish, the head below, however, black; humeral angles and hind margins of metapleural part yellowish; postalar calli obscurely brownish or reddish brown; hind margins of tergites laterally, extreme sides of abdomen below to a large extent,

greater part of last tergite on side and entire ventral part yellowish red; legs with the hind coxae, greater part of femora (hind ones missing in this unique specimen), tibiae and basal parts of tarsi yellowish, the apical parts of the latter brownish. *Vestiture* with the hairs on disc of thorax shorter and denser than in other species; those on facial cone more developed and longer than in other species, gleaming pale sericeous yellowish to almost whitish; hairs on frons anteriorly more sericeous whitish; fine hairs on occiput dense and dark above, but pale sericeous yellowish to whitish on sides in different lights; hair on disc of thorax composed of brownish and sericeous yellowish ones; prealar bristles yellowish, those across base of thorax brownish to blackish brown and those on scutellum also dark; longish hair on upper part of mesopleuron, on propleural and prosternal parts, in metanotal tuft and on sides of tergite 1 sericeous whitish; hairs across hind margins of tergites poorly developed, yellowish, denser and mainly black on last two tergites; scaling behind eyes and on pleurae conspicuously cretaceous white; that on thorax, scutellum and abdomen above predominantly deep ochreous yellowish, that on abdomen very dense; that on sides of thorax slightly more whitish, but not as white as on pleurae; a small tuft at apex of scutellum and transverse bands across hind margins of tergites, a broadish longitudinal band on each side of abdomen below and the venter conspicuously cretaceous or chalky white; scaling on legs also predominantly cretaceous whitish. *Wings* vitreous hyaline, iridescent; veins brownish, becoming more yellowish at base of first vein and at bases of some of the others at base of wings; second vein originating almost at right angles and with a faint indication of a slight stump at bend, its forward bend in apical part rather conspicuous; middle cross vein a little beyond middle of discoidal cell; squamae subopaquely yellowish whitish, fringed with very sparse whitish hairs; halteres and knobs very pale yellowish whitish, the knobs rather broadish. *Head* with the interocular space on vertex in ♀ appearing broad, but only a very little broader than 2 times distance between outer margins of posterior ocelli; frons markedly broad, relatively broader than in other species, very broad anteriorly where it is only a little less broad than distance between front ocellus and antennae, its upper surface convex, especially anteriorly, not depressed centrally; facial cone not very sharply produced or pointed, more rounded apically, more or less smooth and shining; antennae well developed, joint 1 cup-shaped, whitish-rimmed and much broader than joint 2, joint 3 longer than in other species, club-shaped, its apical slender part longer than in other forms; proboscis about 1.2 mm. long, stoutish, plump, stouter than in other forms, its labella well developed, broad and ovoid, rounded apically and covered with conspicuous spinules. *Legs* with distinct spicules and spurs on front tibiae; front claws reduced to a lesser extent than in other species, being only about half as long as middle ones.

From 1 ♀ (the type) in the South African Museum.

Length of body: about $8\frac{1}{2}$ mm.

Length of wing: about 7 mm.

Locality: Southern Rhodesia: Chipatani Urungwe (Williams, 10 Nov. 1938). Easily recognized by its relatively large size, broad frons, stoutish proboscis, shortish and dense hair on disc of thorax, narrowish cross bands of white scaling across hind margins of tergites, presence of spicules on front tibiae, etc.

The shape of the frons, proboscis and antennae suggests affinities with the new genus *Prorostoma*, described further on, but the hind margin of the eyes is not indented, the front tarsi are longer, the alula is much reduced, etc.

Plesiocera flavilabris n. sp.

Body predominantly black; facial cone or apical part of cone only and buccal rim bony yellowish or ivory yellowish, the buccal rim more whitish; sides of face below antennae black; abdomen above predominantly black, only extreme sides of tergites below, broadish hind margin of last tergite and broadish hind margins of sternites yellowish; narrow hind margin of metapleural part also yellowish; legs with the coxae, greater part of front and middle femora and basal halves of middle ones blackish brown or black, the apices of femora, apical half of middle femora and the tibiae yellowish, the apical parts of front and hind tibiae, front and hind tarsi and apical half of middle ones, however, also darkened. *Vestiture* on frons comparatively sparse, gleaming very pale sericeous yellowish, that on each side anteriorly in the form of a conspicuous silvery tuft; that on sides of face and on antennae in form of very fine silvery tomentum; hairs on cone very sparse, minute and blackish; short, fine, dense hairs on occiput gleaming sericeous yellowish; hairs and bristles on thorax and scutellum above gleaming golden to reddish golden; that anteriorly on thorax, on propleural and prosternal parts, on mesopleuron, coxae and sides of tergite 1 sericeous whitish; hairs across hind margins of posterior tergites dark or black; scaling on sides of thorax above and scutellum, on pleurae, coxae and femora cretaceous white; that on disc of thorax composed of whitish and dull yellowish ones, that at base of thorax and scutellum more ochreous yellowish; scaling on abdomen above dull ochreous yellowish, becoming whitish on sides below and white on venter; scaling on tibiae appearing faintly yellowish. *Wings* vitreous hyaline, iridescent, the extreme base yellowish; veins dark brownish, becoming yellowish basally; microtrichial fringe rather well developed along hind border; middle cross vein just before middle of discoidal cell; squamae whitish, with a whitish fringe; halteres yellowish, their knobs rather small, very pale yellowish. *Head* with the interocular space on vertex in ♀ rather narrowish, distinctly less than 2 times distance between outer margins of posterior ocelli; frons and occiput shining, polished in appearance, the former shallowly depressed medially along centre; facial cone not prominently conically produced, more roundly curved downwards as in *curvistoma*, thus more roundly convex or bluntly parrot-beak-like; antennae shortish, joint 3 relatively short, more or less rapidly narrowed apically from broad base, more rapidly below, without any distinct slender apical part; proboscis about .8 mm. long, confined

to buccal cavity. *Legs* with about 2 spines on lower outer apical part of hind femora; front tibiae without any visible spicules; front claws much reduced.

From 2 ♀♀ (type in the South African Museum).

Length of body: about $3\frac{1}{2}$ –4 mm.

Length of wing: about 3 – $3\frac{1}{2}$ mm.

Locality: North-western Karoo; Kenhardt Div. (Mus. Exp., Oct. 1939).

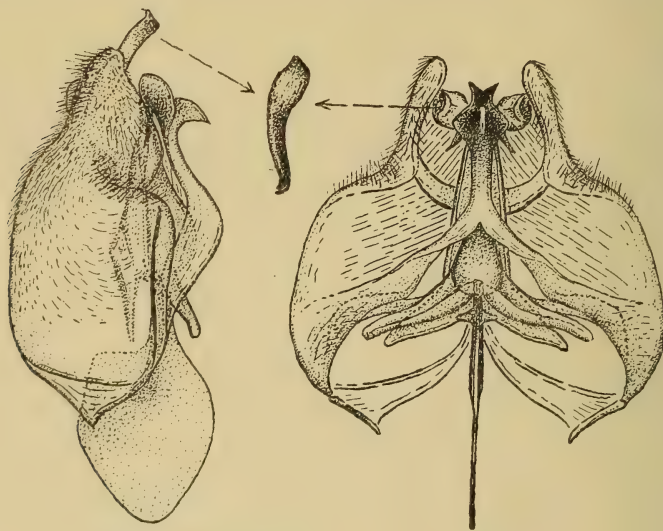
Nearest to *curvistoma*, from ♀♀ of which it differs in having a smoother and more shining occiput and frons, bony yellowish facial cone, no reddish hind margins to tergites discally, darker femora, sparser hairs on frons, a silvery tuft on each side of frons anteriorly, smaller halteral knobs, etc.

The ♀-paratype shows an abnormality in both wings in which the vein between second and third posterior cells is only indicated basally by a short stump from discoidal cell; the wings thus showing only three posterior cells.

Plesiocera rufiventris n. sp.

Body, including scutellum, black; antennal joints 1 and 2 tending to be reddish above; a narrow spot on each side on upper facial part of genae along margins of eyes, humeral angles, postalar calli to a certain extent, hind margin of metapleural part, hind margins of all the tergites (more broadly in ♀), sides of abdomen very broadly, venter, greater part of last sternite and apical part of hypopygium in ♂ yellowish red; abdomen in ♀ practically only with a discal row of black spots; legs with the trochanters and at least hind coxae reddish, basal halves of front and middle femora blackish, their apical halves, and almost entire middle ones in ♀, yellowish red; hind femora yellowish red above and below, but their sides darkened; tibiae and basal parts of tarsi also yellowish red, but the hind tarsi and apical parts of the others darkened, more brownish. *Vestiture* with the hair on frons gleaming sericeous whitish in ♂, more sericeous yellowish in ♀; those on occiput slightly sericeous yellowish; those on thorax and on abdomen above also gleaming pale sericeous yellowish in ♂, more yellowish in ♀; fine hairs on facial cone, tuft-like ones on propleural part, on mesopleuron and especially on sides of tergite 1, whitish; prealar, postalar and scutellar bristles gleaming reddish golden; fine hairs across hind margin of last sternite in ♂ dark or blackish; sparse scaling on frons, denser bands on sides of thorax, that in a submedial stripe on each side on posterior half of thorax and continued on each side of scutellum, dense ones on front half of pleurae, especially sternopleuron, and that on legs cretaceous or pearly white and conspicuous; rest of scaling on thorax and scutellum finer, ochreous yellowish in ♂, more golden brownish in ♀, especially along inner margins of lateral white bands and in a broadish central band; scaling on abdomen above (where still indicated in specimens) yellowish, more whitish below in ♂, with distinct dark or blackish ones on discal black parts; apical part of scutellum in ♂ also with indications of some black scaling; a silvery pruinescence visible

in certain lights on inner side of antennal joint 3 and on genal part of facial region. *Wings* rather elongate, vitreous hyaline, iridescent, with a slight yellowish whitish subopacity at base and in costal cell; veins dark or brown, the first vein, false vein and veins at extreme base tending to be yellowish; axillary lobe and even alula slightly broader than in *psammophila*; middle cross vein just beyond middle of discoidal cell; apical bend of second vein rounded, not sub-angularly kink-like; squamae opaquely yellowish white, with a very fine whitish fringe; halteres pale yellowish, their knobs very pale. *Head* with the interocular space on vertex in ♂ as broad as ocellar tubercle, in ♀ a little more than 2 times width of tubercle; frons without a distinct, or even shallow, central depression in ♂, but with a very shallow one in ♀; facial cone conically projecting; antennae with joints 1 and 2 short, but with 1 slightly longer and broader than 2, joint 3 more or less shaped like that of *psammophila*, narrowed from a broad base, but



TEXT-FIG. 28. Side and ventral views of hypopygium of ♂ *Plesiocera rufiventris* n. sp.

with the apical part distinctly more marked off as a slender part; proboscis about 1-1.4 mm. long, confined to buccal cavity. *Legs* without any spines visible on front and middle femora in ♂, the middle ones in ♀, however, with about 4 minute apical ones; hind femora with about 4 separated spines on outer apical aspect, of which the apical one is the longest; front tibiae without any visible spicules; front claws reduced, but not the same extent as in *flavilabris* and *curvistoma*. *Hypopygium* of ♂ (text-fig. 28) with the beaked apical joints elongate, narrowish, slightly laterally compressed, ending apically in an upturned, sharp point, the joints slightly S-curved when viewed from above (see dorsal view in middle); aedeagus rather bluntly pointed, with a well-developed ventral process below, shaped as shown in figures, the apical part flattened out

into a concave ear-like flap or flange on each side, and arising from it is a central downwardly projecting keel-like pointed process.

From a ♂ and a ♀ in the South African Museum.

Length of body: about 6–7 mm.

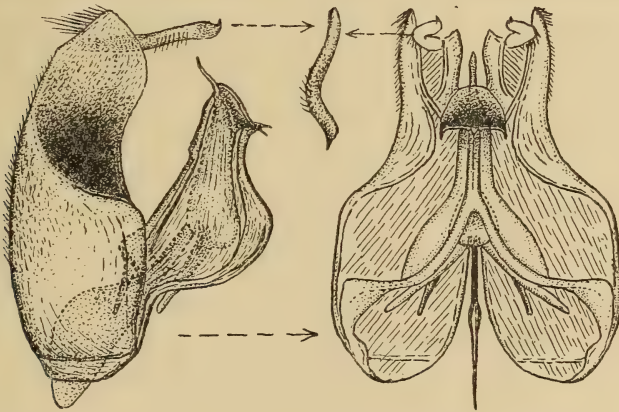
Length of wing: about $5\frac{1}{2}$ – $6\frac{1}{4}$ mm.

Locality: Namaqualand: Knersvlakte (Mus. Exp., Nov. 1936) (holotype); Steinkopf (Smithers, Nov. 1941) (allotype).

Easily recognized and distinguished from the preceding species by the more extensively reddened abdomen, more reddish hind femora and different type of hypopygium.

Plesiocera philerema n. sp.

Body, including scutellum, black; entire facial cone and head below ivory whitish, ivory yellowish to bony yellowish; antennal joints 1 and 2 also to a certain extent yellowish below; humeral angles, a spot above front coxae on



TEXT-FIG. 29. Side and ventral views of hypopygium and dorsal view of beaked apical joint of ♂ of *Plesiocera philerema* n. sp.

each side, area on each side below wing-bases, hind margin of metapleural part, extreme sides of tergites below, hind margin of last tergite in ♀, broad hind margins of sternites, or even entire venter, in both sexes pale yellowish red; trochanters and hind coxae also yellowish red; femora darkened or blackish to beyond middle, their apical parts yellowish; tibiae and basal parts of tarsi yellowish, the apical parts of latter darkened and last two or three joints blackish. *Vestiture* with the hairs rather sparse; hairs on frons basally, ocellar tubercle in ♂, greater part of frons and tubercle in ♀, sparsely on disc of thorax, prealar, postalar and scutellar bristles blackish brown to black; flattened hairs on front part of frons in ♂ gleaming sericeous whitish; tufts on propleural part, mesopleuron, sides of tergite 1 and on hind coxae gleaming whitish; fine, somewhat

sparse, short hairs on facial cone blackish brown; fine ones on tergites predominantly blackish, but with numerous sericeous yellowish ones across hind margin of last tergite in ♀; those on venter pale, sericeous yellowish across hind margin of last sternite in ♀; scaling on lower part of head behind eyes, densely on front half of pleurae, in two narrowish bands on disc of thorax and continued on to each side of scutellum, across extreme hind border of scutellum, on venter, in a distinct and conspicuous band along each side of abdomen, in a narrowish, central stripe or band on abdomen above and on legs cretaceous or chalky whitish; that on venter tending to be more creamy in some specimens; conspicuously dense scaling on frons in ♂ also chalky white, that on frons in ♀ yellowish; scaling on rest of thorax and abdomen above ochreous yellowish, that on sides of thorax also ochreous and not white as in preceding species; that on upper parts of hind femora (not occupied by white ones) tinted slightly yellowish. *Wings* distinctly greyish or greyish hyaline, not so glassy hyaline as in the preceding species, iridescent; veins dark brownish to blackish brown, the first vein and those at extreme base yellowish; alula and axillary lobe reduced like those of *psammophila* and related forms; apical forward bend in second vein subangular or angular; middle cross vein at about or just beyond middle of discoidal cell; squamae opaquely yellowish whitish, very sparsely fringed with very fine, short, pale hairs; halteres pale yellowish, with almost white knobs. *Head* with the interocular space on vertex in ♂ as broad as tubercle, in ♀ about, or even a little less than, 2 times width of tubercle; frons with an indication of a slight or shallow, more or less transverse, depression at about middle, the base in ♀ appearing slightly convex; facial cone tending to be somewhat shiny, sharply and forwardly conical and pointed apically; antennae rather shortish, resembling those of *curvistoma*, joint 1 being a little longer and broader than 2, joint 3 rapidly tapering to a point from a broad base, ending in a very short style, bearing a stylet; proboscis about 1-1.25 mm. long, its labella rather pointed apically, slightly protruding beyond apex of buccal cavity. *Legs* without any visible spines on front and middle femora; hind ones with a well-developed inner row of about 5-7 distinct spines below and also a row of outer lower ones in ♂, and sometimes a few smaller ones in ♀ also, but often with only 1 longish apical spine on lower outer aspect; tibiae with the spicules and spurs on front ones wanting or vestigial; front claws much reduced or rudimentary. *Hypopygium* of ♂ (text-fig. 29) with the apical angles of last sternite, opposing hypopygium, more produced, longer and more angular than in all the preceding species; basal parts with a deep, foveate depression on each side towards neck region apically, the apical dorsal margin of apical part of each basal part provided with some stoutish, spine-like hairs; beaked apical joints elongate, slender, curved and provided on outer side with a row of shortish hairs; aedeagus with the apical part slender and directed upwards, the aedeagus provided with a ventral process, the apical part of which is broadened, flattened and concave as shown in right-hand figure; lateral struts rod-shaped and basal strut shaped as shown in side and ventral views.

From 7 ♂♂ and 22 ♀♀ (types in the British Museum and paratypes in the South African Museum).

Length of body: about 5-6 $\frac{1}{4}$ mm.

Length of wing: about 4-4 $\frac{1}{2}$ mm.

Locality: Southern Karoo: Matjiesfontein (Turner, 25-30 Oct. 1928) (types); Matjiesfontein (Turner, 16-20 Oct. 1928 and 1-18 Dec. 1928). West Cape: Bulhoek, between Clanwilliam and Klawer (Mus. Exp., Oct. 1950). Namaqualand: Knersvlakte (Mus. Exp., Oct. 1950). Koup Karoo: Teekloof in the Nieuveld Escarpment (Mus. Exp., Nov. 1935). Tankwa Karoo: Water-val on the Tankwa River (Mus. Exp., Nov. 1952).

Easily recognized and distinguished from all the preceding species by its entirely ivory or bony yellowish facial cone and lower part of head, absence of a band of cretaceous whitish scales on sides of thorax, more greyish wings and different type of hypopygium.

Plesiocera pernotata n. sp.

Body predominantly black above; antennal joints 1 and 2, entire facial cone and head below yellowish; humeral angles and propleural parts above front coxae, area below wing-bases, greater part of metapleurae, postalar calli, hind margin of scutellum, narrowish hind margins of tergites above, sides of abdomen broadly or entirely, broad hind margins of sternites or almost entire venter and entire last sternite pale yellowish red; coxae, front and middle femora and all the tibiae yellowish; hind femora, excepting extreme apices, black; basal part of tarsi yellowish, but rest of tarsi becoming dark to blackish brown. *Vestiture* with the hair on head above, disc of thorax, across hind margin of tergite 1 on sides, fine hairs across hind margins of other tergites, even posteriorly on last two, and the very fine ones towards apex of facial cone above black; prealar bristles, however, gleaming yellowish red or reddish golden; hair on propleural part and dense hairs on sides of tergite 1 whitish, that on mesopleuron sericeous yellowish; fine hairs on occiput also sericeous yellowish to golden; scaling on body above, especially on abdomen, predominantly dull ochreous yellowish, that on disc of thorax with an indication of darkish, graphite-like ones towards sides and greyish ones medially; scaling on sides of head behind eyes ochreous yellowish; a conspicuous band of dense, flattened scaling on each side of thorax in front of wing-bases, dense, conspicuous ones on pleurae, especially on front part, those in a broadish well-marked-off band on each side of abdomen and scaling on venter conspicuously cretaceous or pearly white; that on legs also cretaceous white. *Wings* tending to be greyish or greyish hyaline as in *philerema*, iridescent; veins blackish brown, more brownish at base; alula and axillary lobe much reduced; forward bend in apical part of second vein kink-like; middle cross vein at about middle of discoidal cell; squamae subopaquely whitish, with a scarcely visible white fringe; halteres yellowish, their smallish knobs paler. *Head* with the hind margin of eyes broadly sinuous; interocular space on vertex in ♀ only about 2 times width of tubercle; frons

without any indication of a central depression; facial cone well developed, prominently projecting forward, its apical part rather sharp; antennae with the cup-shaped joint 1 longer and broader than joint 2, joint 3 gradually tapering apically, no distinct and slender apical part being marked off; proboscis about 1 mm. long, its labella rather shortish, confined to buccal cavity. *Legs* without any visible spines on front and middle femora, with about 4 or 5 slender and shortish ones on outer apical aspect of hind ones; tibiae with minute spicules visible on front ones, these much less conspicuous than those on middle tibiae; front claws reduced, though not so vestigial as in *psammophila*, *curvistoma* and *philerema*.

From a ♀-type in the South African Museum.

Length of body: about 7 mm.

Length of wing: about 5 mm.

Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936).

Easily recognized by its bony yellowish facial cone and lower part of head. From ♀ of *philerema*, which it resembles, it may be easily distinguished by the yellowish front and middle femora, yellowish reddish hind border of scutellum, more extensively yellowish red venter, reddish metapleural part, presence of distinct white scaling on sides of thorax and absence of a narrow central band of white scaling on abdomen above.

Gen. *Conomyza* n. gen.

This new genus is erected to contain a species which on account of certain distinct characters cannot be retained in the genus *Plesiocera*, as defined in this memoir. In quite a number of characters it is, however, almost indistinguishable from the latter genus. Its chief characters, when compared with the latter, are as follows:

Body similarly shaped. *Vestiture* also composed of hairs and adpressed scaling, the former also comparatively or moderately sparse; the finer and longer ones disposed in the same way and on the same parts of body, those on abdomen also fine, shortish and inconspicuous; scaling on body, however, distinctly finer, more hair-like or pile-like, the individual scales, even along sides of thorax above, on pleurae, abdomen and on legs finer and more hair-like, giving the insects a distinctly more pily appearance than in species of *Plesiocera*; scaling on sides of thorax, even if denser than on disc, not contrastingly cretaceous whitish or ochreous yellowish and that on pleurae also not contrastingly white. *Head* as in *Plesiocera*, broader across eyes than across thorax; occiput (text-fig. 25, on right), however, distinctly shorter or narrower behind ocellar tubercle, the occipital lobes thus less prominent, the medial sulcation distinctly broader, more gap-like, the two lobes more broadly separated, the sulcus nearly as broad as width of ocellar tubercle; eyes with the hind margin as in *Plesiocera* (cf. text-fig. 26, a), not indented or subangulately emarginate, only broadly sinuous, separated above on vertex in both sexes, narrower in ♂♂ and about as broad

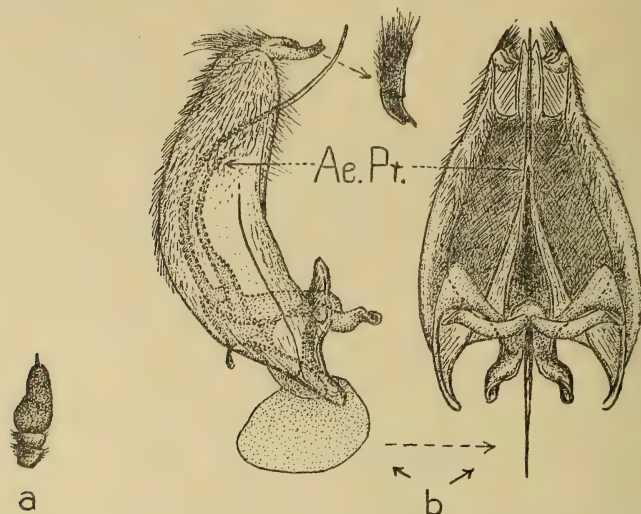
as ocellar tubercle, appearing slightly narrower than in *Plesiocera*, there being no small space between each lateral ocellus and inner eye-margin; interocular space in ♀♀ a little less than 2 times width of tubercle; facial part also produced, distinctly cone-like, the conical part, however, less sharply pointed, slightly blunter, more rounded; antennae (text-fig. 30, *a*) as in *Plesiocera*, joint 3 gradually narrowed apically, more rapidly along lower part, no distinct slender apical part visible as in the case of some species of *Plesiocera*, ending apically in an almost indistinguishable terminal style, bearing a stylet; proboscis also short, confined to buccal cavity, its labella blunter apically. *Wings* as in *Plesiocera*; alula also much reduced and axillary lobe narrowish; middle cross vein at about or near middle of discoidal cell; second vein originating somewhat obliquely quite a distance away from base of third vein at a point about halfway between base of latter and middle cross vein; apical part of second vein also kinked. *Legs* with some spines on outer lower and apical aspect of hind femora and also with a row of distinct spines on inner lower aspect from base to beyond middle in ♂♂; tibiae always with distinct, though small, spicules and spurs on front ones; front tarsi scarcely as long as front tibiae, usually shorter, with distinct spicules like those on middle tarsi, though smaller; front claws not markedly reduced or vestigial as in *Plesiocera*; pulvilli well developed. *Hypopygium* of ♂♂ (text-fig. 30, *b*) rather large and conspicuous, with the opposing last sternite rather more elongate than in *Plesiocera*, its apical angles also angular; basal part divided dorsally into two by a suture, the apical part of each hairy and the base of each drawn out into a lobe-like process; beaked apical joints narrowish, curved inwards, more or less hollowed above, the edges more or less ridge-like, the inner one bearing an upwardly directed dentate process or spine near apex, the hinder part of each joint provided with hairs above (side and dorsal views in middle); aedeagus very elongate, slender, cylindrical and curved as shown in the side view, with a long ventral process (Ae. Pr.) arising near its base from middle part of aedeagal complex, the aedeagal part also produced basally and dorsally on each side into a lobe-like process (seen in outline in left-hand figure and also in right-hand one); ramus on each side from each basal part as shown in figures; lateral and basal struts well developed, shaped as shown in figures.

The genotype species is *Conomyza semirufella* n. sp. of which the typical form and a distinct variety show the following characters:

Conomyza semirufella n. sp.

Body black above; facial cone and head below and antennal joints 1 and 2 pale yellowish to bony yellowish; humeral angles, propleural part above front coxae and metapleural part in ♂, entire or almost entire pleurae in ♀, postalar calli, especially in ♀, hind margin of scutellum in both sexes, hind margins of tergites, broad sides of abdomen, especially in ♀, entire or greater part of venter, entire hypopygium of ♂ and greater part of last tergite in ♀ pale yellowish or pale yellowish red; legs, including coxae, predominantly yellowish:

upper surfaces of hind femora in ♂ however darkened, dark brownish; apical parts of tarsi and almost entire hind tarsi dark brownish to blackish brown; spines on femora and spicules on tibiae black. *Vestiture* with the hairs predominantly pale sericeous yellowish; those on front part of pleurae and on sides of tergite 1 more whitish; those on frons in ♂ gleaming whitish, deeper yellowish in ♀ and intermixed with darkish hairs; prealar, postalar and scutellar bristles slightly yellowish reddish to reddish; fine hairs on facial cone sericeous whitish in ♂, in ♀ with some blackish ones above towards apex; short and fine hairs across last two tergites yellowish or sericeous yellowish, but with some intermixed blackish brown ones medially above in both sexes; scaling predominantly



TEXT-FIG. 30. (a) Left antenna of ♂ *Conomyza semirufella* n. gen. and n. sp.
(b) Side and ventral view of hypopygium of ♂ of same.

dull yellowish to ochreous yellowish above, paler and more dull whitish to white on pleurae; that on sides of thorax above in front of wings denser, slightly more conspicuous and slightly paler than on disc; scaling on front part of frons in ♂ white; that on venter in both sexes paler than on abdomen above, more whitish, but not conspicuously cretaceous white; scaling on legs whitish. *Wings* slightly greyish hyaline, iridescent, with a slight subopacity in costal cell and at base; veins dark brownish to blackish brown, bases of veins at base of wings yellowish; squamae subopaquely whitish, fringed with fine whitish hairs; halteres very pale yellowish, with pale lemon yellowish to almost white knobs. *Head* with the frons appearing slightly convex, without any indication of a central depression; antennae (text-fig. 30, a) with joint 1 a little longer than 2, joint 3 gradually tapering apically from a broad base, slightly more rapidly on lower side, the apical part not very slender; proboscis only about 1 mm. long. *Legs* with about 4 or 5 separated and slender spines on inner lower aspect of hind femora from base to beyond middle in ♂ and with 2 or 3 small ones on outer apical aspect,

without any spines on inner aspect in ♀, but with 2 or 3 slender ones laterally in apical aspect; claws curved down apically. *Hypopygium* of ♂ (text-fig. 30, b) as described for genus, with the medial ventral aedeagal process (Ae. Pr.) in form of a semi-membranous or softly chitinated trough-like structure, the ventral part of which is hollowed out trough-like and the apical part narrowed, pointed and curved like the cylindrical aedeagus.

From a ♂ and a ♀ in the South African Museum.

Length of body: about 6 mm.

Length of wing: about $4\frac{1}{2}$ mm.

Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936).

This species is no doubt variable in colour and the colour of the vestiture. Some ♂-specimens differ from the typical ♂ to such an extent that they may be referred to a distinct variety which is characterized as follows:

Conomyza semirufella var. *karooana* n.

Body predominantly black, less extensively reddish; rim of buccal cavity, especially below eyes or sometimes greater part of face, humeral angles, hinder part of metapleurae, sides of tergite 1, sides of abdomen below, greater part of venter, last sternite, broad hind margin of last tergite and to a certain extent also narrow hind margins of tergites 5 and 6 laterally pale yellowish reddish to a variable extent; antennal joints 1 and 2, greater part of facial cone, entire scutellum, greater part of pleurae and abdomen more extensively black; legs as in the typical form. *Vestiture* with the bristly hairs on disc of thorax and the postalar and scutellar bristles darker than in the typical ♂, more blackish brown to black in certain lights; prealar bristles, however, appearing more yellowish; some short hairs across hind margin of tergite 1 laterally also blackish; the longer hairs across hind margins of tergites 6 and 7 composed of sericeous yellowish and conspicuously intermixed black hairs; scaling on frons dense and chalky white; that on body above tinted yellowish, appearing dull yellowish, creamy or greyish yellowish. *Wings* appearing slightly more greyish than in typical form. *Head* with the interocular space on vertex also as broad as ocellar tubercle; antennal joint 3 nearly or quite 2 times as long as 1 and 2 combined, almost ovate in outline, relatively much broader than in typical ♂, the upper margin appearing more curved. *Legs* with about 5–7 slender spines, from base to beyond middle, on inner aspect of hind femora and with a few much smaller ones on outer apical aspect. *Hypopygium* structurally identical with that of typical ♂.

From 6 ♂♂ (type of variety in the South African Museum).

Length of body: about 4–7 mm.

Length of wing: about $3\frac{1}{2}$ –5 mm.

Locality: Koup Karoo: Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952) (type). Tankwa Karoo: Kleinbrak (Mus. Exp., Nov. 1952); Laingsburg (Mus. Exp., Feb. 1938); Rooinek Pass (Mus. Exp., Oct. 1952).

Gen. *Coryprosopa* n. gen.

Superficially this new genus resembles the genus *Plesiocera* as defined in this memoir. Compared with the latter its essential characters are as follows:

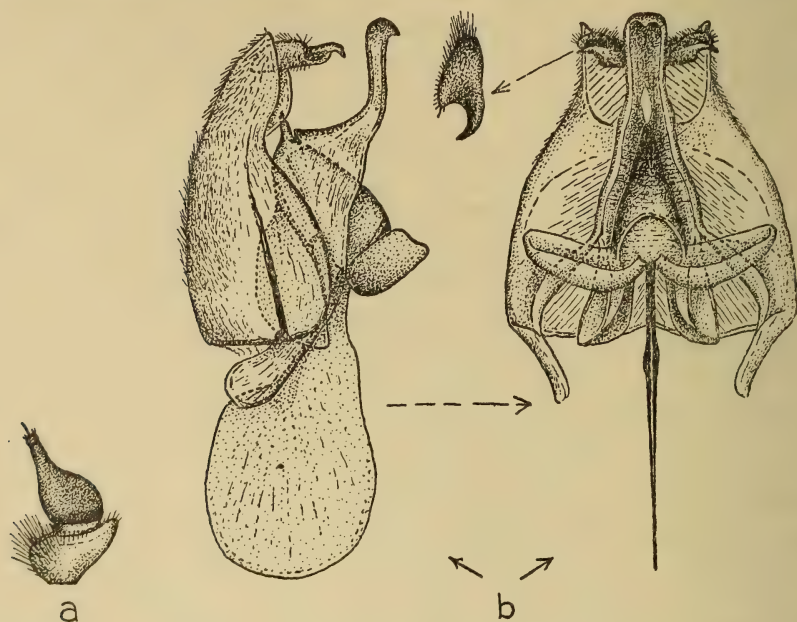
Body and legs more extensively reddish. *Vestiture* with the erect hairs distinctly longer and more conspicuous, those on abdomen and also across hind margins of all the tergites distinctly longer, giving the abdomen a distinctly hairy appearance, the individual hairs distinctly more bristle-like; scaling on body very much finer, even finer than in *Conomyza*, the individual scales very fine, hair-like or pile-like, dense on body above, but sparse on front half of pleurae, much sparser than in *Plesiocera* or even *Conomyza*; greater part of pleurae dull, due to a very fine greyish tomentum. *Head* with the medial sulcation behind ocellar tubercle on occiput narrowish, cleft-like, not so broad as in *Conomyza*; eyes with the hind margin only very feebly sinuous at about middle and, as in the two preceding genera, not subangularly indented or markedly emarginate, separated above on vertex in both sexes, the space as broad as ocellar tubercle in ♂♂ and a little more than 2 times as broad as tubercle in ♀♀; antennae (text-fig. 31, a) with joint 1 very much broader and more distinctly cup-shaped, lodging transverse joint 2, joint 3 very much more rapidly narrowed apically than in any species of *Plesiocera*, the base thus bulbular and the apical part slender, the entire joint more or less bulb-shaped; facial region prominently conical and produced, the base of face appearing slightly more transversely depressed; buccal cavity long and deep; proboscis confined to length of buccal cavity, its labella rather long, quite or nearly half as long as rest of proboscis, slightly pointed apically and spinulate. *Wings* comparatively shortish in relation to body; two submarginal cells present; apical part of second vein with a forward kink; alula and axillary lobe much reduced as in *Plesiocera*; base, costal cell and basal half of first basal cell and in ♀♀ also greater part of marginal cell and entire first basal cell infused with yellowish brownish and also with distinct spot-like infusions on apical cross veins of basal cells (infusions in wings and infusions not found in *Plesiocera*); costal cell comparatively longer than in the preceding two genera; base of second vein bent down perpendicularly or at right angles to third vein, giving off a basally directed stump at this angle; knobs of halteres relatively small, scarcely or only a little broader than broadest part of stem. *Legs* with spines present on all the femora, especially in ♀♀, also with a few spines on inner lower basal part of hind femora in ♂♂ and also with some lateral apical spines in both sexes; tibiae with the spicules and spurs developed on all, but those on front ones smaller; front tarsi distinctly shorter than front tibiae, provided with spicules as in *Conomyza*; claws curved down apically, the front ones, though smaller than the others, not markedly reduced or vestigial as in *Plesiocera*; pulvilli well developed. *Hypopygium* of ♂ (text-fig. 31, b) not so exposed as in *Plesiocera*, withdrawn into apical part of abdomen; last opposing abdominal sternite relatively shorter than in latter genus, its apical angles also slightly pointed and subprominent; basal parts of hypopygium itself divided into two parts by a dorsal dividing suture, each part with a basal

tongue-like lobe and apical angle of each basal part not produced to the same extent as in *Plesiocera*; beaked apical joints entirely different, broadened in basal half, produced apically into an outwardly curved beak, the outer apical angle angular (see dorsal view in middle figure), the dorsum covered with hairs, especially towards base; aedeagus with the apical part shortish, produced basally on dorsal aspect into a prominent process on each side as shown in figures, the lateral ramus on each side from each basal part coalescing and forming an elongate ventral process, the ventral part of which is hollowed out and the apex slightly recurved (see side and ventral views in figures); lateral struts very well developed, more strongly developed than in *Plesiocera*; basal strut also longer and broader. The genotype and only known species is *Coryprosopa lineata* n. sp.

Coryprosopa lineata n. sp.

Body mainly reddish to reddish brown, even frons reddish brownish to reddish yellow; antennal joints 1 and 2 also yellowish red to reddish brown, joint 3 sometimes darkened above; facial cone and head below ivory or bone-yellowish to yellow, sometimes reddish; ocellar tubercle and usually base or basal half of frons dark brownish or blackish to a variable extent, sometimes entirely yellowish in some ♂♂; occiput blackish to about or more than half-way down behind eyes; thorax above reddish right round, the disc however black or dark, but with two broadish longitudinal bands of fox-reddish scales separating three broad bands of bluish grey pruinescence covering the dark background, or sometimes with two broad black bands only; humeral angles and anterior spiracular area pale yellowish; scutellum with a black, central fascia, varying in width, sometimes wider apically; abdomen with a conspicuous, longitudinal, black band on each side above, broad basally on tergite 2, narrowing and thinning out posteriorly, with a narrower and sometimes less conspicuous black band along each side, more evident in some specimens; hind margins of tergites and sternites tending to be paler, more yellowish than general reddish brown background and their extreme edges pale yellowish; legs mainly yellowish or pale yellowish red, the hind femora in ♂ slightly darkened above apically, the tibiae and apices of femora usually distinctly paler yellowish in both sexes; middle of apical margins of trochanters below black; tarsi pale yellowish, last joint brownish; spines and spicules on legs and apical half of claws black. *Vestiture* with the bristly hairs mainly sericeous yellowish to deep golden yellowish; those on frons and face sericeous yellowish or almost white to golden in ♂, golden to deep golden in ♀, sometimes more reddish golden; tuft on propleural part, on mesopleuron and on sides of tergite 1 paler, pale sericeous yellowish; bristly hairs on abdomen golden to fulvous or reddish golden; fine scaling on body above dense, mainly creamy to dull ochreous yellowish, especially on disc of thorax, where there are also the two submedial bands of rufous brownish or fox-reddish scaling, especially in ♀; similar reddish brown scaling along sides of thorax to posterior calli; scaling on black abdominal bands brownish to red-

dish brown in contrast with the more ochreous yellowish ones on rest of abdomen above; fine scaling on venter a little or scarcely paler than above; sparse scaling on lower part of mesopleuron and upper part of sternopleuron dull yellowish whitish; that on legs pale dull yellowish to yellowish white; pruinescence on pleurae and to a certain extent also on venter greyish yellowish or bluish grey. *Wings* vitreous hyaline, iridescent, the base, costal cell and basal half of first basal cell in ♂ and in ♀ also entire first basal cell, basal part or more than basal half of marginal cell and even base of first submarginal cell yellowish



TEXT-FIG. 31. (a) Dorsal view of left antenna of ♀ *Coryprosopa lineata* n. gen. and n. sp.
(b) Side and ventral views of hypopygium of ♂ of same species.

brownish; distinct spot-like infusions on apical cross veins of basal cells and at base of third main vein; veins reddish brownish to dark brown, greater part of first vein, basal part of third and greater part of fifth more yellowish; middle cross vein at about or scarcely beyond or sometimes even distinctly beyond middle of discoidal cell; squamae opaquely yellowish to yellowish white, fringed with sericeous whitish hairs; halteres pale yellowish red, their knobs pale yellowish to almost white, the anterior upper part sometimes tinted reddish brownish. *Head* as described for genus, with an indication of a slight or shallow depression in front of ocellar tubercle in some ♀♀; proboscis about 1-1.5 mm. long; palps slender, pallid, at least half as long as proboscis. *Legs* with some irregularly arranged spinules on front femora below towards base, with about 4-7 spines in a row on outer lower part of middle femora; hind femora with about 3-8 shortish spines on outer part, also with about 3-9 longer ones in basal

half or from base to apex on inner lower part in ♂ and also with some lateral spines and spinelets along outer upper apical part in both sexes. *Hypopygium* of ♂ (text-fig. 31, *b*) as described for genus.

From 19 ♂♂ and 22 ♀♀ (types in the South African Museum and paratypes in the British Museum).

Length of body: about $5\frac{1}{2}$ –9 mm.

Length of wing: about $4\frac{1}{2}$ – $6\frac{1}{2}$ mm.

Locality: Moordenaars Karoo: Lammerfontein and Swanepoel (west of Laingsburg) (Mus. Exp., Oct. 1952) (types). Koup Karoo: Koup Siding (Mus. Exp., Oct. 1952); Klaarstroom near Prince Albert (Mus. Exp., Oct. 1952); Matjiesfontein (Turner, 22–3 Oct. 1928). Namaqualand: Knersvlakte (Mus. Exp., Oct. 1939); Kamieskroon (Mus. Exp., Nov. 1936); Bowesdorp near Kamieskroon (Mus. Exp., Nov. 1931); Kamieskroon-Springbok (Mus. Exp., Oct. 1939); Nigramoep (Smithers, Oct. 1941); Klipvlei near Garies (Mus. Exp., Nov. 1931). Bushmanland: Pofadder (Mus. Exp., Oct. 1939); Naib between Springbok and Pella (Mus. Exp., Oct. 1939); Aggenys (Mus. Exp., Oct. 1939); Nieuwoudtville (Mus. Exp., Sept. 1941). Great Namaqualand in South-West Africa: Aus (Turner, 8–30 Jan. 1929).

This easily recognizable species appears to be variable in the extent to which the black on body is developed. The ♂-paratype from Aggenys in Bushmanland differs from the more typical ♂♂ in having at least the basal half of frons darkened as in ♀♀ and the black on occipital part, disc of thorax and scutellum and on abdomen distinctly more extensive, there being no reddish across base of thorax and on sides of scutellum; abdomen above almost entirely black, the reddish represented medially on hind margins of tergites as a row of spots and as a narrowish stripe on each side and even the pleural parts distinctly darker than in more typical ♂♂ and the frons too has darkish hairs.

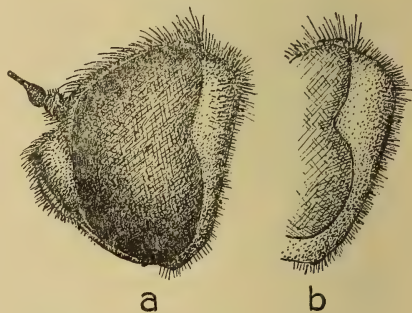
Gen. *Prorostoma* n. gen.

(Syn. = *Plesiocera* Bezzi, nec Macquart, p. 81, *Broteria* (Ser. Zool.), xx, fasc. ii, 1922.)

This genus is based on a South African species which Bezzi described as *Plesiocera integra*. From some representatives of both sexes of this species in the collections before me, it is quite evident that *integra* cannot be placed in the genus *Plesiocera* as defined in this revision on its South African representatives. When compared with the description, and especially the illustration of the wing, of *Plesiocera algira* Macq. given by Engel (p. 391, *Die Fliegen d. Pal. Reg.*, lief. 91 (Bombyliidae), pl. vii, fig. 94, 1935), it also appears, especially in its wing-characters, not to be generically identical with the true Palaearctic *Plesiocera*. Pending the taxonomic elucidation of the generic identity of the various Palaearctic and Ethiopian species belonging to the *Plesiocera*-group, *integra* Bezz. is provisionally referred to a new and separate genus of which it constitutes the genotype. Compared with *Plesiocera*, as defined in this revision

and as based on the descriptions and figures given for *Plesiocera* s. str., and also with related genera belonging to this group, the chief characters of this new genus are as follows:

Body somewhat elongate as in *Plesiocera*, the abdomen, especially in ♀♀, however, relatively less elongate and proportionally broader. *Vestiture* composed of erect bristly hairs and dense scaling, the erect hairs comparatively denser and more conspicuous than in *Plesiocera* or even *Coryprosopa*; that on frons, disc of thorax and also on facial cone distinctly denser and more conspicuous than in *Plesiocera*, and denser though shorter than in *Coryprosopa*, denser, longer, and more conspicuous on venter in ♂♂ than in ♀♀; hairs on body above and on abdomen giving the insects a more hirsute appearance; dense scaling composed of comparatively finer and narrower scales than in *Plesiocera*, though not so fine and pile-like as in *Coryprosopa*; that on each side of thorax, even if slightly denser than on disc, not much broader or flatter and not markedly contrasting band-like as in *Plesiocera*; that on front half of pleurae dense as in *Plesiocera*, not very sparse as in *Coryprosopa*. *Head* also broader across eyes than across thorax; hind margin of eyes (text-fig. 32, a) distinctly, though shallowly, emarginate at about middle, this indentation more distinct than in any of the preceding genera (cf. text-fig. 26, a); occiput well developed as in *Plesiocera*, the medial sulcation deep and cleft-like; interocular space on vertex in ♂♂ a



TEXT-FIG. 32. (a) Side view of head of ♀ *Prorostoma integrum* (Bezz.). (b) Hind margin of eye of ♀ *Epacmoides biumbonatum* (Bezz.).

little broader than ocellar tubercle and, according to Engel's description (p. 391, loc. cit.), not so broad as in *Plesiocera algira*; space in ♀♀ relatively broader than in ♀♀ of the three preceding genera, slightly more than 2, to almost 3, times as broad as tubercle; frons, especially in ♀♀, thus appearing broader, distinctly somewhat centrally depressed before tubercle in ♀♀, the basal part also shining; antennae (text-fig. 32, a) as in the other genera, with joint 1 short, broad, somewhat cup-shaped, broader and slightly longer than transverse joint 2, joint 3 also much longer than 1 and 2 combined, rather rapidly narrowed apically from the broad base, the apical part or half thus distinctly slender, the joint club-shaped, ending apically in a distinct, though shortish, terminal joint-like element or style which bears no visible stylet as in the other genera (such a stylet absent, vestigial or very insignificant); facial region also conically prominent, but the cone distinctly and comparatively shorter, more rounded, and more tumid or convex in appearance, its apical part more rounded (text-fig. 32, a); proboscis short, stoutish, confined to length of buccal cavity, the labella broadish, ovate, and distinctly spinulate; palps comparatively shorter and stouter than in the other genera, not visibly jointed, but also with longish and fine hairs below. *Wings* with the same type of

venation; second main vein similarly bisinuate apically, at first bending forward and then backward, the forward bend, however, more rounded, and the backward bend deeper, this vein originating nearer middle cross vein at, or almost at, right angles; vein between discoidal and third posterior cells very sinuous, bending backwards into third posterior cell to a much greater extent than in *Plesiocera*; alula distinctly more developed, broader, more conspicuous, more rounded or lobe-like than in any of the preceding genera; axillary lobe also distinctly broader, more lobe-like; squamal fringe composed of distinctly longer, denser and more conspicuous hairs than in *Plesiocera*. Legs with distinct spines on all the femora below and, in ♂♂, also with some spines on lower inner aspect of hind femora; tibiae with spicules and spurs developed on all, those on front ones, however, smaller, much as in *Coryprosopa* and *Conomyza*; front tarsi slightly shorter than tibiae in ♂♂, but much shorter in ♀♀, not longer as in *Plesiocera*; front claws only slightly smaller than middle ones, not vestigial or very much reduced as in *Plesiocera*. Hypopygium of ♂♂ (text-fig. 33) with the apical angles of the opposing last sternite also slightly angularly prominent; basal parts of hypopygium also divided into two parts by an impressed suture, each covered dorsally with shortish hair, the base of each produced into a lobe-like process and the apical neck-like part narrower and well marked off from basal two-thirds, the outer apical angle not prominently produced as in *Plesiocera*; beaked apical joints elongate, curved outwards near apex as shown in middle (dorsal view), without any distinct or visible hairs above; aedeagus shortish apically, passing basally and on dorsal aspect into a broadish flattened process on each side (see right-hand figure), with the lateral ramus on each side from each basal part fused together bandwise, across aedeagal complex, to form a ventral aedeagal process, prolonged on each side into a ventrally directed process (see lower middle figure) the apical part of which is flattened and broadened; lateral and basal struts as shown in side and ventral views in the figures.

The genotype and only known species of this genus is *Prorostoma integrum* (Bezz.) which Bezzi described under *Plesiocera*.

Prorostoma integrum (Bezz.)

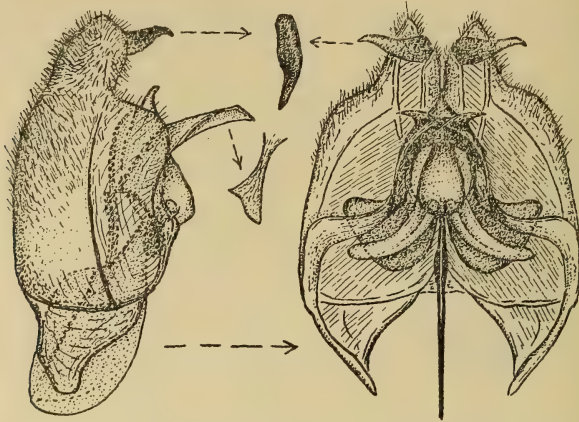
(Bezzi, p. 81-2, *Broteria* (Ser. Zool.), xx, fasc. ii, 1922 (as *Plesiocera*);

Bezzi, p. 298, *Konowia*, iv, 1925, in key to known species of *Plesiocera*.)

Some ♂♂ and ♀♀ in the collections before me agree with Bezzi's description of this species. Moreover one ♀-specimen from Willowmore is labelled as '*Plesiocera integra* Bezz.' and in red also as 'Bezz. 24', indicating that it was a duplicate of the same species (a ♂-specimen) sent to Bezzi by the late Dr. Brauns. As Bezzi, however, based his description on the solitary ♂-specimen, a supplementary description of both sexes is given here:

Body, including scutellum and antennae, predominantly black; edges of buccal rims on the inside pallid or ivory yellowish; narrow hind margin of metapleural plate, narrowish or broadish hind margins of tergites, extreme sides

of tergites below (sometimes broad) and broad hind margins of sternites, or sometimes even greater part of venter, pale yellowish red to yellowish or orange yellowish; coxae and femora predominantly black, the apical parts, or extreme apices, of femora yellowish, the tibiae yellowish or yellowish brownish to a variable extent, even appearing darkish or black in some specimens, or they may be darkened apically, especially hind ones, basal halves or basal parts of tarsi also yellowish to a variable extent, or greater part of tarsi may be dark. *Vestiture* with the erect bristly hairs gleaming sericeous whitish on frons in ♂♂, more sericeous yellowish to pale golden in ♀♀; those across front margin of



TEXT-FIG. 33. Side and ventral views of hypopygium of ♂ of *Prorostoma integrum* (Bezz.).

thorax, on sides above front coxae, mesopleuron and densely on sides of tergite 1 distinctly more whitish or sericeous whitish in both sexes; conspicuous dense hair on facial cone gleaming sericeous yellowish, becoming deeper golden or orange golden across apical part of buccal rim; prealar, postalar and scutellar bristles, and bristles across base of thorax gleaming golden to reddish golden; bristly hairs transversely across tergites, especially across hind margins, golden yellowish to reddish golden in ♀♀, sometimes slightly paler in ♂♂, the hairs on venter denser in ♂♂ more whitish than above in both sexes; tomentum on frons anteriorly and on genal parts appearing silvery whitish, that on lower parts of body greyish silvery; scaling on body above appearing dull greyish white, dull greyish yellowish to even ochreous yellowish, that in ♂♂ on the whole more greyish whitish; that on abdomen above sometimes tinted more yellowish or ochreous than on thorax; that on pleurae conspicuously cretaceous or chalky whitish, contrasting with that above; that on venter distinctly whiter and more cretaceous whitish than on body above; that along hind margins of eyes also whitish; that on legs predominantly whitish. *Wings* vitreous hyaline, iridescent, the costal cell and base with a slight whitish subopacity; veins brownish to blackish brown, false vein in costal cell, basal part of first main vein and parts

of veins at extreme base yellowish; middle cross vein a little before middle of discoidal cell; squamae subopaquely whitish or yellowish whitish, their fringes whitish; halteres yellowish, the knobs very pale yellowish white to whitish. *Head* (text-fig. 32, *a*) as described for the genus; interocular space on vertex in ♂♂ as wide as ocellar tubercle plus width of one ocellus on each side; interocular space in ♀♀ varying in width from a little more than 2, to almost 3, times width of tubercle; frons with the margins less rapidly diverging anteriorly in ♀♀ than in ♂♂, its integument in ♀♀ distinctly shining in basal half at least, the apical part slightly convex; facial cone (side view in text-fig. 32, *a*) as described for genus; antennae and proboscis as described, the latter about 1-1.4 mm. long.

Legs with an inner and outer row of small spines on lower aspect of front and middle femora; hind femora with about 5-9 spines on outer lower part and, in ♂♂, with a row of about 6-9 fine spines on inner lower part and with a few small lateral spines or spinelets and some dorsal apical spines above in both sexes; claws tending to be distinctly more gradually curved to apex or more sickle-shaped than in other species of the *Plesiocera*-group. *Hypopygium* of ♂ (text-fig. 33) as figured and described for the genus.

In the British, Transvaal and South African Museums.

Length of body: about 4-9½ mm.

Length of wing: about 4-8½ mm.

Locality: Little Karoo, Great Karoo, Koup Karoo, Namaqualand, Bushmanland, North-western Cape and Great Namaqualand in South-West Africa.

This species is apparently very widely distributed over the greater part of the semi-arid regions in South Africa, and, judging from the series before me, is variable in size and in certain slight details. A large ♀, from Aus in South-West Africa, differs from the more typical ♀♀ in having the yellowish hind margins of the tergites broader, the tibiae and tarsi paler, and the first main vein, the third vein and even basal halves of fourth and fifth main veins paler yellowish. In the typical form, described from the southern part of the Karoo, the tibiae tend to be entirely very dark or even blackish.

Gen. *Epacmoides* n. gen.

(Syn. = *Plesiocera* Bezzi, nec Macquart.)

In 1922 Bezzi (pp. 81 and 83, *Broteria* (Ser. Zool.), xx, fasc. ii) referred two species, *integra* and *biumbonata*, to the genus *Plesiocera* and on p. 81 (loc. cit.) distinguished these in a short key. In another synoptic table (p. 298, *Konowia*, iv, 1925) he again incorporated these two South African forms, but this time compared them with the three known Palaearctic species of *Plesiocera*. As stated under the preceding genus *Prorostoma*, there are reasons for believing that '*Plesiocera integra*' does not belong to the genus *Plesiocera* as defined in this memoir and as based on descriptions of the genotype *Plesiocera algira* Macq. The other species, *biumbonata*, though never described, is nevertheless recognizable from

the few distinguishing characters given in Bezzi's keys and also appears not to belong to *Plesiocera*. Though apparently agreeing with *Prorostoma integrum* (Bezz.) in many respects, *biumbonata* nevertheless differs in some salient features which necessitate its inclusion in a separate and new genus. This new genus, when compared with the preceding genus *Prorostoma*, has the following characteristics:

Body very similarly shaped, the abdomen in ♀♀ also tending to be broader than in *Plesiocera*. *Vestiture* with the erect bristly hairs developed to the same extent and as dense, and thus more developed than in *Plesiocera*, the hairs on venter in ♂♂ also longer than in ♀♀; scaling on body very similar and as dense, but with apparently broader scaling on sides of thorax in front of wings, on postalar calli, sides of scutellum, transversely across hind margins of tergites and sometimes even on frons in both sexes. *Head* with the occiput as in *Prorostoma*; hind margin of eyes (text-fig. 32, *b*), however, more distinctly and more deeply subangularly indented; interocular space on vertex in ♂♂ about as broad as, or a little broader than, ocellar tubercle; space in ♀♀ about, but sometimes little broader than, 2 times distance between outer margins of posterior ocelli; antennae with the first joints slightly more separated basally, otherwise very similar to those of *Prorostoma*, joint 3 also as rapidly narrowed apically and club-shaped; facial cone longer, larger, less rounded, more conically pointed or conically pyramidal, much more like that of *Plesiocera*, the surface with distinctly less conspicuous and much shorter hairs than in *Prorostoma*; frons in ♀♀ with a more distinct central depression in front of front ocellus; proboscis also short, confined to buccal cavity; palps very similar. *Scutellum* usually very characteristic, distinctly different from that of any other genus in this group, rather short, transverse, somewhat tumid, its apical margin centrally and perpendicularly incised, notched, or indented to a variable extent, thus rendering the scutellum bilobate, the lobes, however, not long, each with its hind border smooth, polished in appearance and shining, the indentation itself with conspicuous pale or cretaceous whitish scaling. *Wings* as in *Prorostoma*, well developed and broadish; alula and axillary lobe also well developed, lobe-like; venation as in *Prorostoma*. *Legs* usually without any spines, or only with some minute spinelets basally, on front femora below; middle and hind femora with comparatively fewer spines, only a few longish ones being present on outer apical aspect of hind femora and even in ♂♂ without any spines on inner lower part; tibiae also with spicules on front ones as in *Prorostoma*; front tarsi shorter than front tibiae; front claws not vestigial or very much reduced; pulvilli well developed. *Hypopygium* of ♂♂ (text-figs. 34 and 35) with the lateral apical angles of opposing last sternite also somewhat angular; basal parts of hypopygium itself differing from that of *Prorostoma* in not having the apical part so well marked off; beaked apical joints more like those of *Coryprosopa*, not narrowish throughout, but with an outer angular apical part; aedeagus without a complex, ventral, aedeagal process, the process, if present, in form of a forwardly projecting ledge or a pair of stylets; basal strut sometimes with a distinct, shelf-like, lateral ledge present on each side.

The distinct and characteristic bilobate or notched scutellum and the rather deeply and subangularly indented hind margin of the eyes distinguish this genus very easily from all the other genera in the *Plesiocera*-group dealt with in the preceding pages. The bilobate nature of the scutellum is reminiscent of *Othniomyia* (Part I of this revision, p. 707, *Ann. S. Afr. Mus.*, xxxiv) and of the American genus *Geminaria* Coq. In this respect it also agrees with some species of *Aphoebantus*, such as the Palaearctic *bituberculatus* Beck. and the Ethiopian *bilobatus* Bezz. According to descriptions there is no doubt that this new genus resembles or is closely related to the American genus *Epacmus* Ost. Sack. (p. 142, *Biolog. Centr. Amer. Dipt.*, i, 1887) n. n. for *Leptochilus* Lw. (p. 78, *Berl. Ent. Zeit.*, xvi, 1872). The American genus, however, appears to differ in having a longer proboscis, more widely separated antennae, more onion-shaped third antennal joints, no pulvilli, etc. There is no doubt that *Epacmus* also belongs to the *Plesiocera*-group of genera and it was even placed as a synonym of *Plesiocera* by Engel (p. 390, *Die Fliegen d. Pal. Reg.*, lief. 91, 1935). At present only four species of *Epacmoides* and their varieties are represented in the collections before me. These four species, of which *biumbonatum* (Bezz.) is the genotype, may be separated as follows:

1. (a) Scutellum broad, transverse, broad apically, its central perpendicular apical incision deeper, more gap-like, the scutellum thus distinctly more bilobate apically; facial cone distinctly more convexly rounded, its dorsum more convexly rounded in profile, the cone delimited from frontal and antennal part by a more distinct and deeper transverse groove-like depression at its base, the cone also duller and with more pubescence; scaling on thorax and pleurae distinctly much denser. 2
- (b) Scutellum tumid, more narrowed apically, more conical, its central perpendicular apical incision feebler, fainter, narrower and shallower, the scutellum thus less bilobate apically; facial cone more sharply pointed, more conically pyramidal, its dorsum appearing straight in profile, the cone delimited from frontal and antennal part by a transverse depression which is distinctly shallower, less deep and groove-like, the cone itself more shining and with sparser pubescence; scaling on thorax and pleurae comparatively sparser. 4
2. (a) Scaling on frons wanting or only very sparsely present, usually only present as a small tuft on each side anteriorly; that on disc of thorax and scutellum and even in more or less two longitudinal bands on abdomen above with much or very distinct and deeper ochreous yellowish, ochreous brownish to brownish ones; bristly hairs on frons denser, more conspicuous and brownish or brownish golden; fine hairs on occiput and hairs on thorax and scutellum above tending to be distinctly darker, gleaming deeper reddish or brownish golden. ♂ ♀ *biumbonatum* (Bezz.) (p. 128)
- (b) Scaling on frons in both sexes, especially in ♂♂, characteristic and conspicuous, in form of dense, flattened, cretaceous or chalky whitish ones, constituting a conspicuous white patch; that on thorax, scutellum and abdomen above predominantly or even entirely cretaceous whitish, yellowish scaling being absent or distinctly less extensive and less conspicuous; bristly hairs on frons fewer and gleaming sericeous whitish; fine hairs on occiput and hairs on thorax and scutellum tending to be more whitish or pale sericeous yellowish, the stouter bristly ones also paler yellowish or paler reddish golden. 3
3. (a) Red or reddish on body and legs less developed, the red hind margins of tergites discally and laterally and venter in both sexes distinctly much narrower and less extensive; apices of femora less broadly reddish yellow and last tibiae tending to be darker, more brownish, especially above; prealar, postalar and scutellar bristles either whitish, pale sericeous yellowish or very pale yellowish; abdomen in ♀ without any or with paler or less yellowish scaling. ♂ ♀ *albifrons* n. sp. (p. 130)

- (b) Red or reddish on body and legs, especially in ♂, more developed, more extensive, the yellowish red or reddish hind margins of tergites discally above and especially on sides below and on venter much broader and more extensive, the sides and venter in ♂ often almost entirely reddish; apices of femora usually more broadly reddish yellow and last tibiae pale or yellowish like the others; prealar, postalar and scutellar bristles gleaming more reddish golden; abdomen in ♀ at least with more ochreous scaling above.
 ♂ ♀ *albifrons* var. *pallidulum* n. (p. 131)
4. (a) Apical incision in scutellum more distinct, more evident; apices of femora and the tibiae much paler, yellowish or luteous; hind margins of tergites distinctly narrowly or broadly reddish or yellowish brown; hairs on face much denser and with more pale ones on sides; bristly hairs on sides of thorax and on upper part of mesopleuron more reddish golden. ♂ ♀ *xerophilum* n. sp. (p. 132)
- (b) Apical incision in scutellum very much fainter, scarcely evident and then only in certain lights; tibiae very much darker, brownish to almost black, especially hind ones; hind margins of tergites not reddish or yellowish; hairs on face sparser, shorter, mainly dark and even on sides with fewer pale ones; bristly hairs on sides of thorax and in mesopleural tuft more whitish or only yellowish. ♀ *cryptochaenum* n. sp. (p. 133)

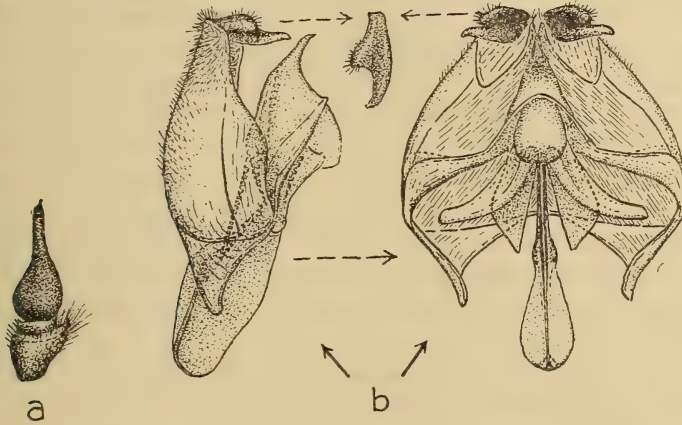
Epacmoides biumbonatum (Bezz.)

(Bezzi, pp. 81 and 83, *Broteria* (Ser. Zool.), xx, fasc. ii, 1922; p. 298, *Konowia*, iv, 1925 (as *Plesiocera biumbonata*).)

There is no doubt that the numerous specimens, both ♂♂ and ♀♀, in the collections before me, represent this species to which Bezzi referred in the synoptic keys given in the references cited above. As this species was never described in detail, a fuller and more complete description is appended:

Body, including antennae, facial cone and scutellum, predominantly black; rims of buccal cavity from about middle to apex, especially on inner side, pallid or yellowish; narrow hind margin of metapleural plate, hind margins of tergites, sides of tergites below, especially in ♂, broadish hind margins of sternites and, in some ♂♂, even entire venter, broadish hind margins of last tergite and sternite in ♀, and almost or the entire last sternite in ♂ yellowish reddish to pale reddish; coxae and greater part of femora black, apices of femora or even apical third of front and middle ones, the tibiae and greater part of tarsi pale yellowish reddish or luteous, the apical parts of tarsi darkened, the last three joints blackish; apical parts of claws black; spines and spicules on legs black. *Vestiture* with the erect bristly hairs on frons fairly dense and conspicuous in both sexes, distinctly golden to brownish golden, those in ♂ with a more distinct brownish tint, becoming even darker on sides anteriorly; fine hairs on occiput, especially medially, also gleaming yellowish golden to faintly brownish golden; bristly hairs on disc of thorax gleaming deep reddish golden to brownish golden, appearing predominantly reddish brownish in certain lights; prealar, postalar and scutellar bristles gleaming deep reddish golden; tuft-like hairs just above front coxae and on humeral parts, mesopleural tuft, dense hair on sides of tergite 1 and hairs on venter (more numerous and conspicuous in ♂) gleaming sericeous whitish, but those in mesopleural tuft in some ♀♀ tinted slightly yellowish at their bases; bristly hairs on last coxae sericeous whitish; shortish bristly hairs, chiefly across hind margins of tergites, on

abdomen above gleaming sericeous yellowish to golden in ♂, deeper yellowish or more brownish or reddish golden in ♀, even appearing brownish in certain lights; scaling on body above and pleurae dense, that on frons practically wanting, very sparse in both sexes, represented only as a small pale or yellowish tuft on each side anteriorly; that on facial cone also sparse, pale ochreous yellowish to dull whitish and somewhat scattered; that behind eyes denser and whitish; that on pleurae, sides of thorax and sides of scutellum, that vertically down scutellar indentation and to a great extent on disc of thorax conspicuously



TEXT-FIG. 34. (a) Side view of left antenna of ♂ of *Epacmoides biumbonatum* (Bezz.).
(b) Side and ventral views of hypopygium of same.

cretaceous or chalky whitish; some finer scales more or less transversely across middle of thorax discally and in two indistinct, submedial, posteriorly directed, shortened bands from transverse band, the dense scaling discally on scutellum, that more or less arranged in a broadish, indistinct, longitudinal band on each side of abdomen above and to a certain extent also transversely across hinder parts of tergites yellowish, ochreous yellowish to ochreous brownish; scaling on abdomen, however, predominantly whitish, that transversely across hind margins of tergites and on entire venter cretaceous or chalky whitish, much cretaceous whitish scaling also on hinder parts of pleurae; scaling on legs predominantly cretaceous whitish, that on upper surfaces of front and middle femora sometimes tinted yellowish to ochreous yellowish. *Wings* glassy hyaline, iridescent, with a very slight whitish subopacity in costal cell and at base; space between false vein and first main vein in costal cell opaquely yellowish; veins brownish, dark brownish to even blackish brown, the basal part of first vein, costal vein and vein at base yellowish, with distinct dark or blackish small spot-like infusions on first main vein at base of first basal cell and at base of third main vein or fork of first and third veins; forward bend in apical part of second main vein fairly deep and rounded; vein between submarginal cells tending to be bent at right angles to third vein, sometimes provided with an indication of a

short stump at this bend; middle cross vein usually just before middle, sometimes tending to be at about middle, of discoidal cell; squamae opaquely pale yellowish white or yellowish, fringed with whitish hairs; halteres very pale yellowish, the knobs almost white. *Scutellum* transverse, broadish, somewhat tumid, bilobate, the incision gap-like and distinct, the hind borders of lobes shining. *Head* with the hind margins of eyes indented as figured (text-fig. 32, *b*); interocular space on vertex in ♂ as broad as tubercle; space in ♀ about, or a very little less than, 2 times distance between outer margins of posterior ocelli; frons more rapidly diverging apically in ♂, the integument somewhat shining in both sexes, slightly and shallowly depressed centrally in front of front ocellus in ♀, frons in both sexes, however, tending to be slightly convex; antennae with the cup-shaped joint 1 broader and only slightly longer than transverse joint 2, joint 3 (text-fig. 34, *a*) club-like, its basal part somewhat bulb-like and the apical part slender; facial cone somewhat convexly rounded, the transverse basal depression in front of antennae appearing deep and groove-like. *Legs* with about 2–3 spines on outer lower aspect and sometimes 1 or 2 on inner lower part of middle femora; hind femora with about 2–5, usually about 3, longish spines on lower outer apical part. *Hypopygium* of ♂ (text-fig. 34, *b*) with the lateral ramus on each side from each basal part not produced into a ventral process below aedeagus.

From 12 ♂♂ and 19 ♀♀ in the South African Museum.

Length of body: about $3\frac{2}{3}$ –7 mm.

Length of wing: about 4 – $6\frac{2}{3}$ mm.

Locality: Karoo and Namaqualand.

This species is very variable in size and to a much lesser extent in the development of the red or reddish on body.

Epacmoides albifrons n. sp.

This species is structurally almost inseparable from *biumbonatum*, but there are nevertheless certain very distinct differences which necessitate a separate specific status. From *biumbonatum* it differs in the following respects:

Vestiture with very characteristic, compact, dense, flattened, cretaceous whitish scaling on frons in both sexes, but more especially in ♂, with slightly more whitish scaling on facial cone; that on thorax, scutellum and abdomen above predominantly or even entirely cretaceous or chalky whitish, yellowish scales being absent or, if indicated, they are not conspicuously ochreous yellowish or brownish; bristly hairs on frons distinctly fewer and paler, less deeply yellowish or more whitish in both sexes; fine hairs on occiput tending to be more whitish; bristly hairs on disc of thorax and scutellum also tending to be paler, more pale sericeous whitish to yellowish; prealar, postalar and scutellar bristles gleaming paler sericeous yellowish to paler reddish golden or golden; shortish bristly hairs on abdomen, however, also brownish, those discally even tending to be darker, appearing blackish brown in some specimens, the apices of individual

hairs paler, more sericeous yellowish; hairs on venter and tuft on sides of tergite 1 sericeous whitish as in *biumbonatum*. Head with the interocular space on vertex in ♂ sometimes tending to be a little broader than ocellar tubercle. Legs usually with more numerous spines, about 4-7, on lower outer aspect of hind femora, these spines smaller, not always confined to apical part, but extending from even near base, or before middle, to apex. Hypopygium of ♂ similar to that of *biumbonatum* (cf. text-fig. 34, b), differing, however, in having the beaked apical joints relatively narrower, the outer apical angle less angularly prominent, the joint thus slightly narrower across this angle, the beak thus appearing longer, with the lateral ramus on each side from each basal part, where they join under aedeagal part, prolonged or produced into a slight, apically directed, lip-like extension.

From 8 ♂♂ to 13 ♀♀ (types in the South African Museum, paratypes in the British and Durban Museums).

Length of body: about 5-8 mm.

Length of wing: about 4-7 mm.

Locality: South-western Cape Province: Muizenberg Mts. (Thorne, Dec. 1937); Wit River Valley in Bain's Kloof near Wellington (Mus. Exp., Dec. 1949) (types); Villiersdorp (Mus. Exp., Jan. 1937); Genadendal (Mus. Exp., Jan. 1937); Cape Town (Bevis, 2 Dec. 1921); Kleinmond (Wood, Jan. 1937). South-western Karoo: Michell's Pass (Simmonds, 1-5 Dec. 1930); Koup Karoo: Laingsburg (Mus. Exp., Feb. 1938); Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952).

Easily recognizable by the presence of very dense and compact cretaceous whitish scaling on frons, by the fewer and more whitish hairs on frons, and more uniform whitish scaling on body above. It appears to be distinctly variable to such an extent that a form occurring in the western and northern parts of the Karoo and in Namaqualand is referable to a distinct variety, namely:

Epacmoides albifrons var. *pallidulum* n.

This variety represents a northern and Karoo-form of the typical southern form and differs from the latter in having the yellowish red or reddish on body and legs distinctly more developed, more conspicuous and more extensive; hind margins of tergites discally and on sides, especially laterally, and the venter, especially in ♂, distinctly broader, or very much broader, more conspicuous and more extensive; sides of abdomen and venter in ♂ being predominantly, or entirely, pale yellowish reddish and venter in ♀ also more extensively reddish than in typical ♀♀. The apices of femora are usually more broadly pale yellowish reddish or yellowish and the last tibiae are entirely pale like rest of tibiae. The prealar, postalar and scutellar bristles also tend to be more reddish or reddish golden and in ♀ there is usually more ochreous or ochreous brownish scaling discally on abdomen above, sometimes arranged in two rows of discal patches. The hypopygium of ♂ is almost identical with that of *biumbonatum* (cf. text-fig. 34, b).

From 9 ♂♂ and 7 ♀♀ (types of variety in the South African Museum).

Length of body: about $4\frac{1}{2}$ –8 mm.

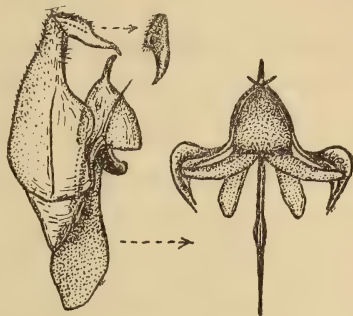
Length of wing: about 4–7 mm.

Locality: Western Cape: Olifants River Valley (Citrusdal-Clanwilliam) (Mus. Exp., Oct.–Nov. 1931); upper sources of Olifants River near Ceres (Mus. Exp., Dec. 1949); Paleisheuvel (Mus. Exp., Nov. 1948) (types). Bushmanland: Onseepkans (Mus. Exp., Oct. 1939); Pofadder (Mus. Exp., Oct. 1939). North-western Karoo: Putsonderwater (Mus. Exp., Oct. 1939); Kenhardt Div. (Mus. Exp., Oct. 1939).

Epacmoides xerophilum n. sp.

Body black, the frons and conical face shining; proboscis dark brownish or sienna brownish; hind margin of metapleural part, hind margins of tergites and sternites narrowly or broadly (sometimes obscurely) reddish, yellowish brownish to reddish brownish, the hind margins of tergites laterally in ♂ slightly broader yellowish and those of sternites appearing more pallid; femora blackish, their apices yellowish brownish to yellowish, the tibiae and greater part of tarsi yellowish or luteous, apical parts of tarsi brownish. *Vestiture* with the flattened scaling on front part of frons in ♂ cretaceous whitish, much sparser and only on sides and more yellowish in ♀; scaling on thorax and scutellum above and on pleurae relatively sparser than in *biumbonatum*, predominantly chalky whitish; that on abdomen above discally, predominantly dull ochreous to brownish yellowish, especially across apical halves of tergites, that on basal halves more dull whitish in certain lights, that on sides of abdomen dull whitish to white; scaling on venter more whitish; that on legs predominantly chalky whitish, appearing more yellowish on tibiae; short bristly hair on more than basal half of frons appearing dark, more brownish, that anteriorly more whitish in ♂, sericeous yellowish to yellowish in ♀; fine hairs on occiput gleaming whitish to pale sericeous yellowish in ♂, more yellowish in ♀; hairs on thorax above whitish in collar and on anterior part and on mesopleuron, gleaming more sericeous yellowish to reddish golden on rest of thorax above; prealar, postalar and scutellar bristles, and those across base of thorax conspicuously reddish golden; hairs on sides of tergite 1 and, in ♂, sides of abdomen whitish; shortish, bristly hairs across hind margins of tergites deep reddish or brownish golden in both sexes, that across last tergite in ♀ appearing darker. *Wings* glassy hyaline, iridescent, with a scarcely perceptible whitish subopacity at base; first and second main veins and those at extreme base yellowish, rest of veins dark brownish; darkish spot-like infusion at base of third vein very faint and indistinct; forward bend in apical part of second vein deep and rounded, the backward bend at apex also deep and rounded; middle cross vein distinctly much before middle of discoidal cell; squamae opaquely whitish, fringed with whitish hairs; halteres pale yellowish, the knobs almost white. *Scutellum* tumid, distinctly more narrowed apically than in either *biumbonatum* or *albifrons*, the

central perpendicular incision or indentation apically only indicated as a very feeble vertical groove-like impression, not deep and gap-like as in the two preceding species. *Head* with the interocular space on vertex in ♂ as broad as distance between outer margins of posterior ocelli plus width of an additional posterior ocellus on each side; space in ♀ only a little more than 2 times distance between outer margins of posterior ocelli; frons slightly convex in ♂, distinctly and fairly deeply depressed centrally in front of front ocellus in ♀; antennal joint 3 broadened bulb-like or club-like basally, more rapidly below, the more slender apical part subequal in length to, or a little shorter than, broad basal part; facial cone rather prominent, slightly longer and more sharply pointed than in either *biumbonatum* or *albifrons*, distinctly less convexly rounded, its dorsum, in profile, distinctly straighter, less convex, a transverse basal depression in front of antennal bases scarcely or not indicated, not almost groove-like as in the other two species, the hairs on cone finer and sparser; proboscis about .8–1.8 mm. long, its labellar lobes ovoid. *Legs* with a few minute spinelets basally below on front femora; middle ones usually with 1 or 2 spines below; hind ones with about 5–10 small spines from near base to apex on outer lower part, some spines on outer upper apical part, but without any spines on inner lower aspect. *Hypopygium* of ♂ (text-fig. 35) differing from that of *biumbonatum* in having the beaked apical joints narrower, more claw-shaped, the lateral ramus on each side produced into a stylet-like process (shown crossed in figure) below aedeagal complex and in having no distinct shelf-like ledge present laterally on basal strut.



TEXT-FIG. 35. Side view of hypopygium, ventral view of aedeagal complex, and dorsal view of beaked apical joint of ♂ *Epacmoides xerophilum* n. sp.

From 1 ♂ and 7 ♀♀ (types in the South African Museum).

Length of body: about 5–8½ mm.

Length of wing: about 4½–8 mm.

Locality: Namaqualand: Knersvlakte (Mus. Exp., Oct. 1939) (holotype) and (Mus. Exp., Oct. 1950) (allotype).

Easily recognized and distinguished by its more conical and pyramidal facial cone and more triangular or apically narrowed scutellum, which is only very feebly vertically incised apically. Like *albifrons* this species also appears to be variable in size and in other characters.

Epacmoides cryptochaunum n. sp.

Several ♀♀ in the collections before me may almost be considered as merely representing a Karoo variety of *xerophilum*, but as they differ in some important

respects they are referred to a distinct species which differs from *xerophilum* in the following respects:

Body with the hind margins of the tergites black and not yellowish as in *xerophilum*; tibiae and tarsi, or at least the former, distinctly much darker, more brownish to almost black (hind ones) and not luteous. *Scutellum* more tumid and conical, its apical incision even less distinct, very faint, at most only indicated. *Vestiture* with the fine hairs on face distinctly less dense and shorter, on the whole much darker, even on sides where they are more extensively pale in *xerophilum*; hairs on sides of thorax, apart from the reddish thoracic bristles, and on upper part of mesopleuron more whitish or pallid, not so yellowish or reddish golden as in the other species. The frons and face in this species are also more shiny.

From 6 ♀♀ (type in the South African Museum).

Length of body: about 5–8 mm.

Length of wing: about $4\frac{1}{2}$ – $7\frac{1}{2}$ mm.

Locality: Rooinek Pass, east of Laingsburg (Mus. Exp., Oct. 1952) (type). Koup Karoo: Teekloof in the Nieuveld Mountains (Mus. Exp., Nov. 1935).

The specimen from Teekloof is a slight variety which is larger and in which the veins in wings are paler and the hair on frons more whitish.

Antonia-group

The characters of this group are summarized in the key to the genera of the *Tomomyzinae* and are also more fully dealt with in the more comprehensive description of the only known and remarkable genus *Antonia* and its species given below.

Gen. *Antonia* Lw.

(Loew, p. 30, *Neue Beitr.*, iv, 1856; Bezzi, p. 136, *The Bombyliidae of the Ethiopian Region*, 1924; Paramonow, p. 67, *Acad. d. Sc. d. l'Ukraine*, xi, livr. 2, 1929; Séguy, p. 238, *Ann. Mus. Genova*, lv, 1931; Engel, p. 357, *Die Fliegen d. Pal. Reg.*, lief. 91, 1935.)

(Syn. = *Dimorphaphus* Walker, p. 255, *The Entomologist*, v, 1871.)

(Syn. = *Dimorphophora* Walker, p. 272, *The Entomologist*, v, 1871.)

(Syn. = *Dimorphaphus* Scudder, *Nomencl. Zool.*, 108 et *Univ. Index*, 99, 1884.)

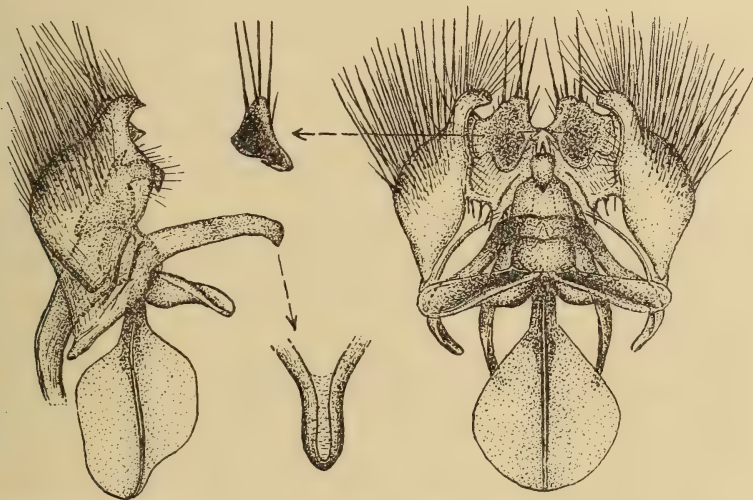
Representatives of this peculiar genus are remarkable in that they bear a very close superficial resemblance to some Syrphid-flies, belonging to the genera *Xanthogramma* and *Sphaerophoria*. Not only do they mimic such Syrphids in the elongate shape of the body and abdomen and in the characteristic yellow and black colour-pattern, but also in their manner of flight. Some confusion in regard to the sex of the species of this genus occurs in most of the literature dealing with such species. The fact that the ♀♀ of this genus are usually provided with an appendage on each side of the ninth or terminal abdominal segment

has contributed to this confusion. Loew, who apparently mistook a ♀ of his genotype *suavissima* for a ♂, was the first to initiate this series of sex confusions and apparently all subsequent authors mistook the ♀♀ for ♂♂ as is evident from their descriptions and keys to the known species. A more careful examination of the terminal part of the abdomen would have revealed the fact that in the specimens with the appendages (♀♀) no hypopygial structures are present and that the abdomen is composed of 9 segments and not 8 as in the true ♂♂. The characters of this genus, as based on the known South African forms, are as follows:

Body elongate; abdomen also elongated, Hymenopteroid in shape, but markedly resembling that of certain Syrphid-flies; a characteristic yellow or orange yellowish and black colour-pattern usually present, especially on the abdomen, which is even more suggestive of certain Syrphid-flies, with the yellow, orange yellowish or even orange reddish much developed in facial region, head below, on pleurae, as spots on or along sides of abdomen, on venter and on legs. *Vestiture* in the form of erect bristly hairs and sparse, fine, decumbent scales or hair-like scales, the latter fine, relatively sparse and practically confined to occipital part behind eyes, on thorax above, abdomen above and to a certain extent on venter; the erect elements in form of bristly hairs on basal part of frons, sides of frons anteriorly, sides of genal part of face and on antennal joints 1 and 2, as dense short hairs on occipital margins, as longish and fairly dense hairs across front part and sides in front of wings on thorax, in a tuft on each side above front coxae, on upper part of mesopleuron, in a meta-pleural tuft, densely on sides of tergite 1 and less densely on tergites 2-4, and on basal sternites; hairs on disc of thorax shorter, those across base of thorax above and on scutellum not very dense but longer than on disc; stouter prealar bristles present on each side in front of wings; longish bristly hairs on postalar calli and scutellum more hair-like; shortish bristly elements on tergites 4 (or 5) to 7 (or 8) usually stouter, more bristle-like or setae-like, denser along lateral margins of these tergites and usually black; coxae with longish hairs; pleurae bare for the greater part, but with some hairs on the sternopleuron and a tuft on metanotum. *Head* quite as wide or a little broader than thorax, slightly deeper than broad; occiput relatively short, much shorter than in the *Plesiocera*-group or in *Lomatia*, with the central sulcus behind ocellar tubercle gap-like, the sides of occipital part on side of head the broadest; eyes large, their hind margin angularly or subangularly deeply indented and with a distinct, short, bisecting line visible from this indentation or emargination; eyes separated on vertex by a space as broad as ocellar tubercle or scarcely broader than tubercle in both sexes, sometimes even tending to be slightly less than width of tubercle in front of tubercle, the facets in upper anterior aspect distinctly coarser and in ♂♂ distinctly coarser than in ♀♀; three ocelli present on a tubercular prominence; frons triangular in both sexes, diverging rather rapidly anteriorly, with less than the basal half rather depressed, the front part of frons medially tumidly prominent, this part, in profile, roundly tubercle-like or boss-like, the

proximal part of this bulge sometimes with a very distinct central groove-like depression which is sometimes continued basally on depressed basal part to ocellar tubercle; antennae situated in a deep transverse depression, bounded above by frontal tubercle and below by produced face, the first joints separated at bases, cup-shaped, much broader and also longer than rounded or transverse second joints which are lodged in them, the third joints club-shaped, broadened onion-like at base, then rapidly tapering, the apical part being slender, ending apically in a rather longish terminal joint-like element or jointed style which itself ends in a stylet; face distinctly conically prominent or produced as in *Plesiocera* and other genera of the *Plesiocera*-group, its upper margin, in profile, horizontal or in line with the long axis of body, the facial part marked off from rest of front part of head by a deep groove, the upper parts of genal regions thus conspicuous on each side below antennae; buccal cavity long, deep and oblique; proboscis confined to length of buccal cavity or only slightly protruding apically, its labellar lobes relatively long, about half the length of rest of proboscis, sometimes even more than half this length, pointed apically; palps tending to be flattened or strap-like, not visibly jointed, unless the apical slightly broadened part represents an apical joint, with fine, sparse hairs present especially along upper outer aspect. *Thorax* quadrangular, slightly convex above, with the humeral angles rather prominent; scutellum very transverse, separated from thorax by a deep transverse groove. *Wings* usually vitreous or greyish hyaline; the membrane usually wrinkled; second longitudinal vein originating very near or at base of third main vein; costal cell rather elongate; upper branch of second longitudinal vein (in apical part of wings) only slightly bent upwards at its end, not so bent up or recurved as in the preceding genera and in *Pantostomus* and *Tomomyza*; three submarginal cells present, the third formed apically between the upper and lower branches of second main vein (cf. fig. 10, p. 137, *The Bombyliidae of the Ethiopian Region*); four posterior cells present, the first of which may be acute apically and closed, or only narrowed and open apically; third posterior cell usually distinctly narrower on hind margin than the second and fourth; middle cross vein near apical part of discoidal cell and the latter usually rather elongate; basal comb wanting; alula wanting or vestigial; axillary lobe narrowish, not lobe-like; halteres with rather long and slender stalks, the knobs truncated and cup-like apically. *Abdomen* attenuated apically in ♀♀, less so in ♂♂, with 8 visible tergal segments in ♂♂ and 9 in ♀♀, with, however, a tendency for some of the segments to be telescoped into the preceding ones; sides of the tergites tending to overlap and to hide the venter below; tergite 9 in ♀♀ just visible under 8 and bearing on each side a downwardly directed appendage or process (see text-figs. 37, *a*, and 38) which is usually slightly flattened and which may be elongate or even broadish, shorter and flattened, strap-like or even curled (see text-fig. 38); last sternite in ♂♂ produced apically on each side into a lobe-like process, the apices of which are rounded. *Legs* without any distinct spines on the front and middle femora below, only fairly dense and longish hairs being present; hind femora also with

dense and longish hairs, but also with some distinct spines on outer apical part and apically above, which are more conspicuous in some species; tibiae with more or less 4 rows of well-developed spicules, those on hind ones more strongly developed, those on inner lower aspect of front tibiae vestigial or wanting; claws well developed, and curved down apically; pulvilli also well developed. *Hypopygium* of ♂♂ (as based upon the known ♂♂ of the two South African species *xanthogramma* and *cercoplecta*) as shown in text-figures 36 and 39, with the basal part more or less divided into two distinct parts, each somewhat shell-like in



TEXT-FIG. 36. Side and ventral views of hypopygium and apical views of beaked apical joint and ventral process of ♂ *Antonia xanthogramma* Bezz.

appearance, ending apically in an outer apical process, the apex of which is bent slightly inwards, each basal part also provided with longish and fairly dense bristly hairs in apical half and on the process; beaked apical joints subtriangular in outline, very much flattened or laterally compressed (see ventral view), the outer face being somewhat concave, ending apically in a fairly sharp point, the lower edge of which is recurved and spine-like (see the apical view in middle figure above in text-figure 36 and middle figure in text-figure 39), with about 3-4 (or more) longish and stoutish bristles along the upper margin of each, and sometimes also with a few shorter hairs; aedeagal complex with the aedeagus itself short, sometimes provided below with a parrot-beak-like process (shown in dotted outline in side view of text-figure 36); lateral ramus, from each basal part on each side, produced together ventrally into a V-shaped ventral process; dorsal part of aedeagal complex produced on each side into a basally directed process (seen in both side and ventral views); lateral struts shoe-horn-shaped; basal strut remarkable in being four-vaned, being produced on each side into a shelf-like or flange-like plate (see figures),

the basal strut thus resembling a cross in section. *Genital structures* of ♀♀ (text-figs. 37, *a*, and 38) externally in form of an outer larger pair of genital lamellae ventrally below and between the appendages, and an inner shorter pair of lamellae between the larger pair (see ventral views of text-figures).

This genus differs from the preceding genera of the *Plesiocera*-group chiefly in having the hind margins of the eyes more distinctly, more deeply and more angularly indented and also distinctly bisected posteriorly in line with this indentation; in having the eyes narrowly separated above on vertex in both sexes; in having the front part of frons tumidly or tubercularly raised or prominent; the antennae more widely separated at base and situated in an apparently deeper depression; in having antennal joint 3 more distinctly onion-shaped; in having the origin of second longitudinal vein at, or very much nearer, base of third main vein; in having three submarginal cells in wings; a distinct and sometimes elongate appendage on each side of tergite 9 in ♀♀; in having denser and more conspicuous hairs on body and legs and an entirely different type of hypopygium.

The biology and life history of representatives of this genus are not known. There is a probability that one of the South African species, *xanthogramma*, may be associated with or may develop in the nests of certain species of *Bembex*, a genus belonging to the *Sphegidae*. Mr. C. Thorne of the South African Museum reports that he caught a ♀ of *Antonia xanthogramma* following one of these fossorial wasps. The Sphegid has the habit of settling on damp sand, of flying away again and settling at some other place some distance away and also of making holes in the ground. It was observed that the *Antonia* accompanied the Sphegid, following and flying immediately behind it, and when the latter settled on the sand the fly would also settle somewhere near it. The new species described hereunder was also caught visiting damp places where species of *Bembex* and *Masarids* settled. It is also significant that the yellow and black colour-pattern of species of *Antonia* also superficially resembles that of species of *Bembex*. On the dissection of the terminal part of the abdomen of one ♀ of *xanthogramma* for the purpose of studying the genital structures, an egg was found. This egg, shown in a side and ventral view in text-figure 37 *b*, is chitinous brownish, about $\frac{1}{2}$ mm. long and a little less than $\frac{1}{4}$ mm. broad, flattened on one side and convex on the other, without any visible microsculpture, but with the chorion on flattened side visibly thinner and apparently smoother, with the greatest breadth across the flattened side and with a distinct opercular or cup-like structure at one end. At present this genus is represented by ten known species of which five have been described from Northern Africa and the Palaearctic region, a single species from Australia, which Becker referred to a separate genus, *Antoniaustralia*, and four from the Ethiopian region south of the Sahara. Another and new species from South Africa is described below. In view of the fact that ♀♀ have been mistaken for ♂♂ there is a probability that the true ♂♂ in some cases have been described as separate species. The genotype is the Palaearctic *suavissima* Lw. Of the four species, *cirrata* Bezz., *xanthogramma* Bezz., *nigrifrons*

Bezz. and *bella* Curr., described from Africa south of the Sahara, only *xanthogramma* and the new species described here are at present known from Southern Africa. These two species may be separated as follows:

- (a) Yellow on head above, on sides of tergites and on legs paler yellowish, more lemon yellowish; proboscis predominantly paler, more yellowish, only the labella brownish; facial cone and also frontal tubercle without any black above and the black between antennae and on antennal joints 1 and 2 less extensive, less conspicuous; black or blackish spots on extreme sides of bases of tergites below very much smaller, indistinct and usually only present on 2-4 or 2-5; hair, especially on thorax in front, sides in front of wings, upper part of mesopleuron and even on sides of tergite 1, in metapleural tuft and on coxae distinctly tinted more yellowish; bristly hairs on sides of tergite 4 also yellowish like those on sides of tergites 2 and 3; tergite 9 in ♀ with elongate and narrowish appendages, about 1 mm. long (see text-fig. 37, a) ♂ ♀ *xanthogramma* Bezz. (p. 139)
- (b) Yellow on frontal tubercle, facial cone, and especially on sides of tergites and sometimes also on legs deeper, more distinctly reddish or orange yellowish; proboscis and labella entirely or predominantly sienna brownish to castaneous brownish; more conspicuous and more extensive black on frontal tubercle, between antennae, on antennal joints 1 and 2 and on facial cone above; black spots on extreme sides of bases of tergites 2-7 distinctly larger, more extensive and more conspicuous; hair on body above and below distinctly less deeply yellowish, more whitish or straw-coloured, that below contrastingly whitish; bristly hairs on extreme sides of tergite 4 predominantly black like those on tergites 5-8, not pale like those on tergites 2-3; tergite 9 in ♀ with the appendage on each side relatively much shorter, broader, flatter and more or less curled up scroll-like (see text-fig. 38).
♂ ♀ *cercoplecta* n. sp. (p. 141)

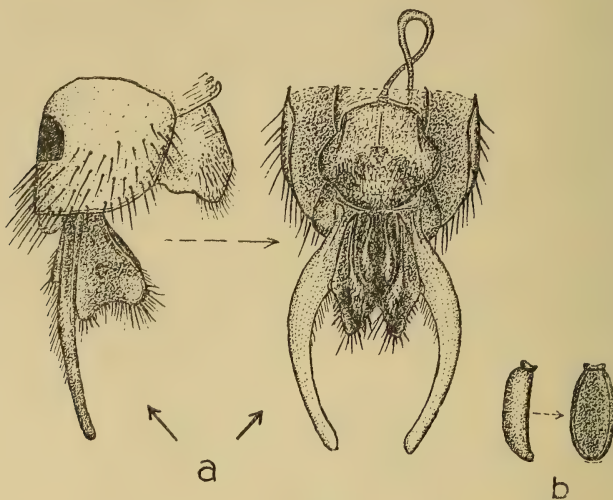
Antonia xanthogramma Bezz.

(Bezzi, p. 140, *The Bombyliidae of the Ethiopian Region*, 1924; Paramonow, p. 74, *Acad. d. Sc. d. l'Ukraine*, tom. xi, livr. 2, 1929; Séguy, p. 239, *Ann. Mus. Genova*, lv, 1931.)

There is no doubt that a series of ♂♂ and ♀♀ in the collections before me represent this species of Bezzi, a description of which was based upon a single ♂-specimen from Natal. As Bezzi described only the ♂ a supplementary description, based upon both sexes, is given here:

Body black; greater part of frons, greater part of antennal joints 1 and 2, entire facial region and head below, lower part of head behind eyes, palps, humeral angles, a transverse triangular spot on each side of thorax in front of wing-bases, postalar calli, greater part of scutellum, excepting only narrow black base and black sides, anterior thoracic spiracles, propleural part just above front coxae, upper part of sternopleuron, entire pteropleural plate, upper part of the hypopleuron, metapleural plate above posterior thoracic spiracle, hind margin of metapleural region, apical half of sides of tergite 1, a large spot on each side of tergite 2 or almost entire sides of tergite 2, greater part of sides of 3-7 and also hind margins discally of 4-7, almost entire tergite 8 in ♀, tergite 8 in ♂, tergite 9 and appendages in ♀, entire venter and genitalia in both sexes, front and middle coxae and hinder part of hind coxae pale yellowish, lemon yellowish to pale ochreous yellowish, the yellow on sides of abdomen and on frons sometimes with a slight reddish or orange tint; base of frons darkened and in ♂ more extensively brownish, with a black spot between antennae;

antennal joints 1 and 2 above, especially in ♂, usually also blackish; proboscis ochreous yellowish or even slightly pale reddish yellow, but the labella brownish; hind margins of tergites 2-7 whitish, especially discally, with a smallish roundish black spot in basal angle on each side below on tergites 2-4 (or 5) and with the black on abdomen above extending down across base on each side from large discal spot on tergites 3-7 and not reaching lateral margins but slightly broadened on each side, especially on tergites 3-5, the discal black spot on



TEXT-FIG. 37. (a) Side and ventral views of terminal part of abdomen of ♀ *Antonia xanthogramma* Bezz. to show appendages, genital lamellae, etc. (b) Side and ventral views of egg of same species.

tergite 7 in ♂ smallest, and that on 8 in ♀ even smaller and hidden by preceding tergite; legs almost entirely lemon yellowish, only the hind tarsi and apical parts of the others darkened and brownish or blackish, the apices of the claws black. *Vestiture* predominantly pale yellowish, that below not much paler than above; hair on thorax, however, appearing distinctly pale lemon yellowish in certain lights; that on sides of face appearing more whitish; that on sides of tergite 1 sometimes more straw-coloured yellowish; bristly hairs on tergites 5-8, especially on sides below, predominantly black, only those across hind margins of these segments yellowish; fine hair-like scaling on thorax and abdomen above gleaming brassy yellowish to golden yellowish; that on occiput also gleaming golden; spines and spicules on legs yellowish, the hairs also predominantly pale sericeous yellowish, those on more than apical half of hind femora, especially on inner and outer aspect, black; hair-like scaling on legs predominantly yellowish, but that on hind tibiae and also somewhat densely on outer apical aspect of hind femora, black. *Wings* vitreous hyaline to slightly greyish hyaline, iridescent; veins dark brownish to blackish brown, paler at base of wings, the false vein in costal cell yellowish; first posterior cell open on hind border of

wings; squamae subopaquely to opaquely yellowish, fringed with straw-coloured yellowish hairs; halteres yellowish, with almost whitish knobs. *Head* with the interocular space on vertex as broad as ocellar tubercle in both sexes, the inner margins of eyes in front of tubercle in ♀, however, more gradually diverging; antennae with the knob-like or onion-like base of joint 3 about a third length of the joint (excluding terminal elements); proboscis about $1\frac{1}{2}$ –2 mm. long. *Hypopygium* of ♂ (text-fig. 36) as described for genus. *Genital structures* of ♀ (text-fig. 37, a) with the appendage on each side of tergite 9 elongate, a little less than 1 mm. long, slightly flattened dorso-ventrally, slightly curved inwards, broader basally than apically, the apex however rounded, with these appendages normally directed ventrally as if hanging down and their apical parts sometimes curled inwards; large pair of outer genital lamellae between appendages ventrally and the pair of smaller inner lamellae as shown in figures. *Egg* shaped as shown in text-figure 37, b, and as described under genus.

In the Commonwealth Institute, British, Transvaal and South African Museums.

Length of body: about 8–11 mm.

Length of wing: about $7-8\frac{1}{3}$ mm.

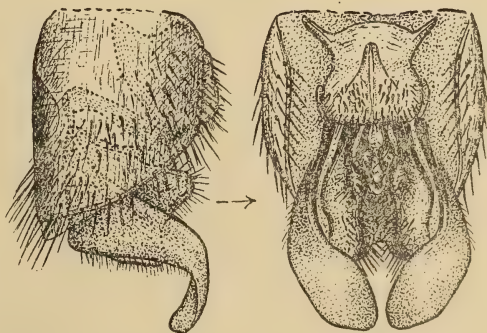
Locality: Western Cape Province, Little Karoo, North-eastern Karoo, Eastern Cape Province, Natal, Orange Free State and Southern Rhodesia.

This species appears to be widely distributed throughout Southern Africa but does not appear to be variable except in size. From the ♀ (not ♂ as stated by Bezzi) of *cirrhata* Bezz., described from Somaliland (p. 138, *The Bombyliidae of the Ethiopian Region*, 1924), this species appears to differ, according to Bezzi's description, in not having a continuous broad yellow stripe on each side of thorax, in having paler yellowish and not yellowish red on sides of abdomen and entirely yellow femora.

Antonia cercoplecta n. sp.

This species, which often hovers over or settles on damp places in dry riverbeds, is very near *xanthogramma*, differing chiefly in the following points:

The yellow on sides of abdomen and on frons and facial cone above distinctly deeper and more reddish to orange, the sides of abdomen in fact being markedly orange yellowish; black on abdomen above distinctly more extensive, even in ♂, the discal patches broader, these black patches and their extensions down the sides of basal part of the tergites very similar to those of *xanthogramma*;



TEXT-FIG. 38. Side and ventral views of terminal part of abdomen of ♀ of *Antonia cercoplecta* n. sp. to show appendages and genital lamellae.

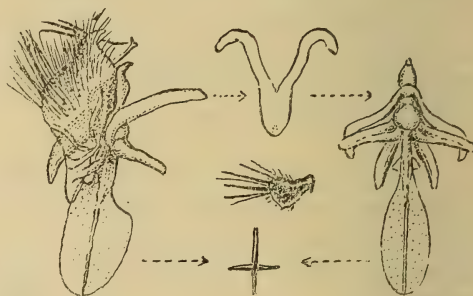
whitish hind margins very conspicuous; black spots at basal angles of tergites on each side below very much larger, more conspicuous and present on tergites 2-6 (or 7) and not only on 2-5; black spot between antennae also larger, and with more extensive black on antennal joints 1 and 2 above and usually also with more conspicuous black on facial cone and even frontal tubercle above; proboscis entirely sienna or castaneous brownish. *Vestiture* distinctly paler, less lemon yellowish, more straw-coloured above; prealar bristles yellowish; hair distinctly more whitish on frons, sides of face, pleurae, coxae and sides of tergite 1 and basal parts of abdomen; that on body below more distinctly contrasting in whiteness; black bristly hairs on abdomen present on tergites 4-7 (or 8) and not only on 5-7 (or 8). *Antennal joint* 3 with slender part relatively longer. *Wings* appearing slightly more greyish hyaline; veins even more distinctly blackish brown or deep chocolate brownish; first posterior cell also open. *Legs* sometimes slightly deeper yellowish and with a distinct black spot or infusion on outer apical part of hind femora; black hairs and scale-like hairs on hind legs also apparently denser, more conspicuous; yellowish spines on apical part of hind femora also more conspicuous and stouter. *Abdomen* with tergite 9 in ♀ having a shorter, very much broader, flattened, more strap-like and curled or scroll-like appendage on each side (text-fig. 38); external genital structures of ♀ also shown in figures. *Hypopygium* of ♂ as shown in text-figure 39, differing from that of *xanthogramma* in having no ventral process below aedeagus, longer and narrower lateral struts, shorter dorsal processes to aedeagal apparatus and a differently shaped basal strut.

In the yellowish colour-pattern of the body and in most other respects this species agrees with *xanthogramma*. In size it is usually slightly larger and more bulky in appearance, about $8\frac{1}{2}$ - $14\frac{1}{2}$ mm. long and with a wing-length of about 8-11 mm.

From 5 ♂♂ and 5 ♀♀ (holotype in the South African Museum, allotype in the Transvaal Museum and paratypes in the British and South African Museums).

Locality: Namaqualand: Kamieskroon-Springbok (Mus. Exp., Oct. 1939). Karoo: Augusfontein (Calvinia Dist.) (Mus. Exp., Sept. 1947) (holotype); Willowmore (Brauns, Oct. 1916) (allotype); Willowmore (Brauns, 15 Dec. 1921). Southern Karoo: Matjiesfontein (Turner, 25-30 Oct. 1928). Moor-denaars Karoo in the Laingsburg Div. (Mus. Exp., Oct. 1952).

From the supposed ♂ of *nigrifrons* Bezz., described from Kenya (p. 141, *The Bombyliidae of the Ethiopian Region*, 1924), this species differs in not having



TEXT-FIG. 39. Hypopygial structures of ♂ *Antonia cercoplecta* n. sp. Left: side view of hypopygium; right: ventral view of aedeagal apparatus; middle above: dorsal view of aedeagal process; middle below: posterior view of four-vented basal strut; middle: dorsal view of right beaked apical joint.

the frons predominantly black and in having more extensive black on the tergites above. From the ♂ (probably ♀) of *bella* Curr., described from the Congo by Curran (p. 37, *Bull. Amer. Nat. Mus. Hist.*, lvii, 1927-8), it appears to differ in not having any black hairs on thorax above, on postalar calli and on scutellum, in not having more or less luteous-tinged wings and in having more extensive black and a slightly different type of colour-pattern on abdomen above.

Subdivision *BOMBYLIIDAE TOMOPHTHALMAE*

The representatives of all the subfamilies (*Lomatiinae*, *Anthracinae* and *Exoprosopinae*) dealt with in the rest of this revision constitute the large second Division *Bombyliidae Tomophthalmae* of Bezzi and other authors which they separated from their first Division *Bombyliidae Homoeophthalmae* (dealt with in Part I of my revision and in this second Part up to end of the genus *Antonia*) chiefly by the ocular characters of an indentation or emargination in hind margin of the eyes and the presence of a distinct, short, bisecting line projecting from it into the eye. As I have already stated in Part I of my revision (p. 21) these distinguishing characters and certain others, though convenient up to a point, are not constant enough to include the anomalous exceptions.

Subfam. LOMATIINAE

As was stated under the *Tomomyzinae* this subfamily at present includes genera which show little homogeneity. An attempt has been made by Becker (pp. 434-5, *Ann. Mus. Zool. Acad. Imp. St. Petersb.*, xvii, 1912) to split the subfamily up into two separate subfamilies *Aphoebantinae* and *Lomatiinae*. A revision of all the known genera which at present are included in it would no doubt necessitate the erection of separate groups of genera and some aberrant genera, such as *Petrorossia* Bezz., *Chionamoeba* Sack and *Chiasmella* Bezz., placed in the *Lomatiinae* by Bezzi, would have to be given a new subfamily rank. Within the geographical limits dealt with in this memoir only five genera, *Lomatia* Meig., *Petrorossia* Bezz., *Chionamoeba* Sack, *Pteraulax* Bezz. and *Pteraulacodes* n. gen., are represented. Two of these, *Lomatia* (as defined in this revision) and *Petrorossia*, appear to replace and to represent the Palaearctic *Lomatia* s. str. and the American *Aphoebantus* (also supposed to occur in the Mediterranean and North African regions) respectively. On the other hand *Pteraulax* and *Pteraulacodes* have not been recorded from elsewhere and appear to be indigenous to South Africa. From the differences between these genera it is evident that they can be relegated to four separate groups: the *Lomatia*-group (*Lomatia*), the *Aphoebantus*-group (*Petrorossia* and the Palaearctic *Pipunculopsis*, *Aphoebantus* and *Cononedys*), the *Pteraulax*-group (*Pteraulax* and *Pteraulacodes*) and the *Chionamoeba*-group (*Chionamoeba* and *Chiasmella*). A synopsis of the chief characters distinguishing these groups is given in the key to the genera and more details are to be found in the comprehensive descriptions of the genera and species dealt with in the following pages. Collectively, representatives of the *Lomatiinae* may however be

distinguished from members of other subfamilies belonging to Division II as follows: From the *Cylleniinae* they differ by their more flattened or cylindrical bodies, the angularly indented hind margin of the eyes, longer face, very much shorter proboscis which is practically confined to the buccal cavity, the conical, pyriform, club-shaped or bulb-shaped third antennal joints, less strongly developed legs, fewer spines on hind femora below and different type of ♂-hypopygia (cf. text-figs. 41-111 and 1-7). From the *Tomomyzinae* they may at once be distinguished by the facial region which is not conically produced or prolonged snout-like, by the club-shaped, bulb-shaped, onion-shaped or even golf-driver-club-shaped third antennal joints and by the much denser hair and bristly hairs on the body. From the remaining two subfamilies, the *Anthracinae* and *Exoprosopinae*, representatives of the *Lomatiinae* differ in having the second main vein originating acutely or obtusely much nearer or very close to base of third vein and in not having a plumula, or small tuft of hairs, on the ligamentous connection between the squama and scutellum.

Lomatia-group

Within our geographical limits the only genus which may be referred to this group is the form of the genus *Lomatia* which is found in Africa south of the Sahara. Without doubt *Lomatia* s. str. of the Palaearctic Region, the genus *Canaria* Beck. and the genus *Anisotamia* Macq. also belong to it. From representatives of the other two groups, members of the *Lomatia*-group differ in the following respects:

Abdomen relatively broad, flattened dorso-ventrally. *Vestiture* on body dense, shaggy and comparatively long, in form of dense brush-like tufts on sides of abdomen and a tuft also present on metanotum. *Wings* with the second vein originating more or less at an acute angle near base of third vein and without a forward bend or kink near its apex; middle cross vein always distinctly beyond or much beyond middle of discoidal cell. *Head* without an abbreviated bisecting line extending forwards from indentation on hind margin of eyes; antennae with a conspicuous brush or tuft of bristly hairs on inner and lower parts of joints 1 and 2; joint 3 broadened club-like, bulb-like or golf-driver-club-like at base and terminating in a fine style only.

Gen. *Lomatia* Meig.

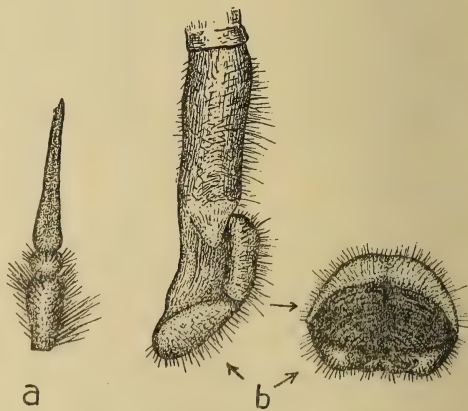
(Meigen, *System. Beschreib.*, iii, 1822 (Introduction); Loew, p. 202, *Dipt. Faun. Südaf.*, i, 1860; Becker, pp. 435 and 460, *Ann. Mus. Zool. Acad. Imp. St. Petersb.*, xvii, 1912; Bezzi, p. 111, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 141, *The Bombyliidae of the Ethiopian Region*, 1924; Engel, p. 361, *Die Fliegen d. Pal. Reg.*, lief. 91 (Bombyliidae), 1935; Austen, p. 94, *Bombyliidae of Palestine*, 1937.)

From descriptions of the genotype species *sabaea* F. and the large number of other Palaearctic and North African species on which the generic characters of

Lomatia are based, it is evident that the species of Southern Africa differ from the Palaearctic forms in certain essentials which appear to be sufficiently constant throughout the various species to warrant the erection of a distinct and separate genus or at least a well-marked-off subgenus. The genus *Canaria* which Becker (pp. 462-3, *Ann. Mus. Zool. Acad. Imp. St. Petersb.*, xvii, 1912) erected to contain a species, *Anthrax brunnipennis* Macq. (p. 70, *Dipt. Exot.*, ii, 1830; Engel, p. 372, *Die Fliegen d. Pal. Reg.*, lief. 91, 1935), from the Canary Islands, seems to fulfil certain taxonomic conditions for the inclusion of the South African species. Bezzi himself suggested their inclusion in this genus in 1924 (loc. cit.). The description of *Canaria* given by Becker is, however, brief and unsatisfactory. A comprehensive survey of all the species, from both the Palaearctic Region and the African Continent, now included in the genus *Lomatia* s. str., is however necessary before the genus could be satisfactorily split up into separate subgenera or genera. At this juncture the only procedure to adopt provisionally is to consider *Lomatia* as a plastic genus of which the numerous Palaearctic and Ethiopian representatives display certain distinct, and to a certain extent constant, characters in various directions which necessitate certain separate and specific groupings, the separate generic or subgeneric significance of which will become apparent only when the species of both hemispheres are monographically revised or studied. All the species dealt with in this memoir are thus provisionally referred to *Lomatia* as was done by both Loew and Bezzi. The characters of the South African form of this genus, as based on the various species described below, are as follows:

Body tending to be broadish and somewhat flattened; abdomen especially broadish and flattened, rarely narrowish; venter usually flattened, the sides of tergites projecting eaves-like over depressed sides of venter; colour invariably black, without any yellowish or ivory yellowish hind margins to the tergites, but those of the sternites usually yellowish or pallid; legs rarely predominantly pale, though the tibiae may often be very much paler than femora. *Vestiture* in form of dense hair on frons, sides of face, on genae and on antennal joints 1 and 2 below, on sides of thorax, in mesopleural tuft, on prosternal part and especially on sides of abdomen where the hair is usually markedly dense, shaggy and tuft-like; that on disc of thorax usually shorter and sparser, relatively denser in front than discally or basally; that on scutellum and abdomen above relatively sparse; that on body above in ♀♀ of some forms distinctly sparser than in ♂♂ and that on sides of abdomen often distinctly shorter; anterior lower part of mesopleuron and down to anterior part of sternopleuron, and pteropleuron down to hypopleuron and usually also greater part of metapleuron around spiracle bare; distinct prealar, postalar and scutellar bristles or bristly hairs invariably present; scaling on body above usually distinct, in form of fine, pubescent, hair-like scales on occiput and on sides of head and fine, hair-like scales on rest of body above, that on abdomen above usually dark or black and pale, the latter arranged across hind margins of tergites in dense transverse bands of variable extent, sometimes more concentrated in tuft-like patches on

sides and with the intervening dark scaling usually denser, finer and shorter; vestiture on legs in form of fine, longish and comparatively sparse hairs on femora below, especially in basal part or basal half, those on lower, outer or hinder aspect of middle femora however distinctly denser and more conspicuous and also longer than rest of the hairs on these femora below; scaling on legs dense, more flattened or lanceolate. *Head* more or less globular, about as broad as or sometimes even slightly broader than, occasionally slightly narrower than, broadest part of thorax; occiput broadish, well developed, sometimes distinctly longer in ♀♀ than in ♂♂, the central sulcus behind ocellar tubercle narrow and slit-like; eyes large, reniform, convex, with the hind margin subangularly, or sometimes more roundly, indented, but without any visible or distinct, short, bisecting line extending forwards from indentation; the eyes separated above on vertex in both sexes, narrower in ♂♂ than in ♀♀, the space in ♂♂ may be as wide as ocellar tubercle or, at narrowest part in front of latter, distinctly narrower than tubercle, rarely broader than latter, the space on vertex in ♀♀ always broader than in ♂♂, usually about, or a little less than, or a little more than, twice distance between outer margins of posterior ocelli, rarely about three, or more, times this width; frons more rapidly narrowed basally in ♂♂ than in ♀♀, usually more or less depressed anteriorly in both sexes, sometimes even deeply or foveately so, rarely not visibly depressed; integument of frons, especially in basal half and on to vertex in most ♀♀, appearing smooth, polished and shining, sometimes so in both sexes; face usually not conspicuous, but in some forms with the medial part slightly more convex or raised, appearing subconically prominent from side; genal part sunk in, groove-like, constituting the furrow separating buccal cavity from eye-margin; buccal cavity deep; proboscis on the whole tending to be relatively short, often confined to length of buccal cavity or projecting only slightly, rarely long, in some species (text-fig. 40) rather short, stoutish, stumpy or plump, the labellar lobes either broad and ovoid like those of some Muscid-flies, resembling two cupped hands when opened, or in other cases (text-fig. 53) more elongate, narrowish and pointed apically; labella and proboscis sometimes covered with visible spinules; palps slender, cylindrical, not visibly jointed, the apical part sometimes slightly broadened, covered with sparse, fine hairs which are longer below; antennae (text-figs. 40, *a*, and under species) usually distinctly separated basally, but not very



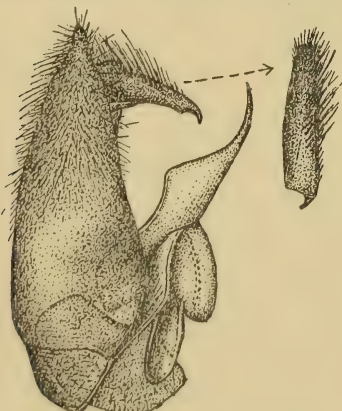
TEXT-FIG. 40. (*a*) Right antenna of ♂ *Lomatia acutangula* Lw. (from inner side). (*b*) Side view of proboscis, and on right a front view of the opened labella, of the same species.

widely, joint 1 usually thickened or even sub-barrel-shaped or broadened apically, usually longer than joint 2, sometimes thickened knob-like on inner lower aspect, usually covered with short, bristly hairs above and with a dense tuft of brush-like or bristly ones below and on inner lower aspect; joint 2 short, only a little longer than broad, with short hairs above and sometimes also below; joint 3 usually broadened basally, either more gradually or rapidly below, the lower basal part either only slightly prominent or much produced and bulging, the base of joint thus either club-shaped, bulb-shaped, onion-shaped or golf-driver-club-shaped, and with the apical part slender or styliform to a variable extent, with the terminal element at apex visible as a short, sometimes scarcely distinguishable, terminal stylet. *Wings* (cf. various text-figures) either normally developed, or sometimes elongate, sometimes tending to be narrowish and short, infuscated, infused or tinged to a variable extent, the pattern of the infusion also variable, or wings predominantly vitreous hyaline or glassy hyaline in a large number of species; infuscation when present sometimes less extensive in ♂♂ than in ♀♀; basal comb on the whole poorly developed, much reduced or vestigial in many forms; second vein originating near base of third vein, its apical part usually bent upwards, sometimes much recurved; two submarginal cells present; four posterior cells present; first posterior cell open on hind margin, either narrowed apically or very broadly open, sometimes elongate and with its sides subparallel, sometimes tending to be spindle- or sub-spindle-shaped, either shorter than, or as long as, or sometimes much longer than discoidal cell; the latter either acute, subacute, subtruncate or truncate apically, its apical cross vein either oblique or parallel to hind border, straight or sinuous; middle cross vein always distinctly or much beyond middle of discoidal cell; alula usually much reduced, narrowish, not rounded lobe-like even though its apical lobe at base of axillary lobe may be moderately developed; axillary lobe either narrowish and much reduced or moderately and broadly rounded, rarely very broad and lobe-like; squamae transverse, fringed with dense hairs; plumula wanting. *Metanotum* distinctly visible on each side between scutellum and tergite 1, covered with a patch of hairs. *Abdomen* with eight visible tergites in ♂♂ and seven in ♀♀; tergite 2 longer than the others; last tergite in ♀♀ subangularly pointed apically, very much smaller and more rounded in ♂♂; last sternite in ♀♀ also narrowed apically, sometimes subangularly rounded, usually dorsal in position and notched or incised apically in ♂♂ and the inner part of its hind margin slightly produced basalwards in the form of a ledge or platform which itself is deeply incised and slit-like medially. *Legs* in most cases without any spines on front femora below, though sometimes with a few small spinelets in apical half above; middle femora usually with 1 or a few longish spines on lower anterior medial aspect; hind ones with a variable number of spines, more frequently with only about 2 or 3 on lower outer apical part below, sometimes also with a number of spinelets on outer and upper parts and usually with about 2 or 3 longer apical spines above; tibiae with four rows of spicules on middle and hind ones of which the outer or hinder upper row on middle ones

and to a certain extent also those in same row on hind ones are longer, sometimes more bristle-like; spicules on front tibiae feebler, absent along lower anterior aspect where they are replaced by a strip or band of dense, short and fine, hair-like spinules; tarsi with some or a number of the spicules below on basal joint of front ones in ♀♀ of some species conspicuously elongated, fine, slender and bristle-like; claws normally developed, their apices curved downwards; pulvilli well developed in both sexes. *Hypopygium* of ♂♂ (text-figures under species) usually reversed in position, the true dorsal side being directed to the sides or more frequently to the ventral side, and its opposing sternite (last unmodified sternite) dorsal in position; neck region of the two symmetrical basal parts more or less narrowed and covered with hairs which are sometimes dense, longish, conspicuous and situated in distinct punctures; outer apical angle of each basal part sometimes angularly, or even sharply, produced; beaked apical joints remarkably uniform in shape, ending in a slightly outwardly and downwardly directed pointed beak and usually covered with fine shortish hairs; aedeagus shaped as shown in figures; lateral struts from middle part very uniform in shape, but sometimes tending to be broadish or narrowed apically or even narrow and rod-like; basal strut variable in shape, very frequently with its dorsal edge incised or emarginate or sharply pointed and in many forms with a distinct flattened, ledge-like, triangular extension on each side basally.

The South African form of the genus as defined above appears to differ from the Palaearctic and North African forms as described by Paramonow and Engel (loc. cit.) in the following respects:

Hind margins or sides of hind margins of tergites never ivory or bony yellowish or yellowish; hair on sides of tergites distinctly much denser, more shaggy, and



TEXT-FIG. 41. Side view of hypopygium and dorsal view of right beaked apical joint of the ♂ of a North African species of *Lomatia* s. str. (probably a var. of *Lomatia Rogenhoferi* Now.).

more or less resolved into dense tufts of black, white or yellow hair, or in zones of either yellowish and black tufts or whitish and black tufts; fine hair-like scaling always present on thorax, scutellum and on abdomen above, the pale ones usually arranged transversely across hind margins of tergites; antennae apparently tending to be slightly more separated at base, with joint 1 tending to be less dilated or knob-like on inner aspect and with a distinctly denser and more conspicuous tuft on inner lower aspect, joint 3 rarely not rapidly broadened basally below and thus rarely not club- or bulb-shaped at base; frons usually more distinctly, often conspicuously, depressed anteriorly; hind margin of eyes without a visible bisecting line and the

indentation more subangular or more rounded; legs with the hairs on femora comparatively much sparser and with the spicules in outer upper row on middle and hind tibiae usually longer and more developed than rest of spicules; hypopygium of ♂♂ (cf. text-figures from 42 under the species), when compared with those of Palaearctic forms figured by Engel (pp. 368–85, loc. cit.) and with text-figure 41 (a side view of that of a North African species, probably a variety of *Lomatia Rogenhoferi* Now.), also different in that the beaked apical joints are differently shaped, less elongate or parallel-sided, without the outer apical angle being angular or produced and with less or much shorter hairs above, a less angularly produced apical part of basal parts, slightly differently shaped aedeagus, etc.

The very closely related genus *Anisotamia* Macq. (p. 81, *Dipt. Exot.*, ii, 1840) which apparently differs from *Lomatia* practically only in having the first posterior cell closed and stalked apically (Bezzi, p. 199, *Bull. Soc. Roy. Ent. d'Egypte*, viii, 1925) is not represented in the collections before me. It is apparently represented only in North Africa and the Mediterranean by the species *ruficornis* Macq. (p. 81, loc. cit.). The species *Anisotamia centralis* which Macquart (p. 82, loc. cit.) described from South Africa is, according to his own description, without doubt a synonym of *Lomatia pictipennis* Wied. Macquart's supposed figure of this species (loc. cit., tab. xiv, fig. 2) cannot possibly refer to his *centralis*, for he distinctly states that the first posterior cell is open.

Notwithstanding the tendency for the species of Southern Africa to fall in certain groups, it is sometimes exceedingly difficult to distinguish certain closely related species, especially in the case of ♀♀, where external distinguishing characters are not very clear or obvious. In the large number of species dealt with in this revision, it was found that Loew and Bezzi's method of grouping the various species on the presence or absence of wing-infuscation or on the nature and distribution of such infuscations is not very satisfactory owing to the fact that some species grade so imperceptibly into others, as far as wing-characters are concerned, that their allocation to either one or other group is almost impossible in a key. In the key given below, which itself is not a natural one, a variety of more suitable characters have been exploited for distinguishing the various species as a result of which species with infuscated wings or even other related characters sometimes come in juxtaposition with forms having more hyaline wings. Both the arrangement of the species in the key and in the groups and sections in the text is thus not always based on their true natural or specific affinities.

Key to the South African species of Lomatia seen by me

1. (a) Knobs of halteres entirely or predominantly very pale above; antennal joint 3 usually more frequently gradually broadened basally below, more club-shaped or leek-shaped, rarely rapidly broadened or bulging basally below. 2
- (b) Knobs of halteres distinctly darker above, yellowish brownish, brownish, dark brown to dark chocolate brownish; antennal joint 3 more frequently more rapidly broadened or bulging basally below, more distinctly bulb-shaped or golf-driver-club-shaped, this lower basal part rarely not prominently bulging. 80

2. (a) Proboscis (text-fig. 40, *b*) markedly short, thick, plump and stout, usually confined to buccal cavity or scarcely projecting beyond its apex, its labellar lobes broad, well developed, ovoid or elliptical, appearing broad and fleshy like that of Muscid-flies, resembling two cupped hands when opened, with the basal part of proboscis comparatively short, thick, stoutish and usually not much longer than labella, and both it and the labella with more conspicuous, coarser and longer spinules; face not prominent apically or appearing subconically prominent from side, its medial and apical part thus not raised or convex, and the apex of buccal cavity not ending sharply in it. 3 (Group I)
- (b) Proboscis (text-fig. 53) always more elongate, comparatively longer, distinctly more slender, with part of it or the labellar lobes usually projecting a little or even considerably beyond apex of buccal cavity to at least level of apices of first antennal joints and, if scarcely projecting, the labella itself is distinctly narrower, more elongate and pointed apically, rarely short, broad and ovoid or resembling two cupped hands, but if ovoid the basal part of proboscis is elongate and much longer than labella and, if the latter is only slightly shorter than base, the labella at least is narrow and pointed apically, with the spinules usually less coarse and conspicuous on basal part; face usually appearing slightly, though distinctly, more subconically prominent apically, its medial and apical part thus more convex or raised, and the apex of buccal cavity ending sharply in it. 14 (Group II)
3. (a) Antennal joint 3 (text-fig. 40) comparatively long, almost rod-like, very gradually narrowed apically; antennal joint 1 usually distinctly longer, quite, or distinctly more than, twice length of joint 2; interocular space on vertex in ♂♂ relatively much broader, almost or quite as broad as length of antennal joint 1; wings comparatively elongate, narrowish, either entirely infuscated or so extensively tinged brownish or blackish brown that even clearer areas appear more greyish; discoidal cell markedly elongate, narrow; vein between submarginal cells originating at right angles and provided with a more conspicuous and longer basally directed appendix; hair on body above predominantly dark and that below whitish; pale scaling on abdomen above in broader transverse bands; spines and spicules on femora and tibiae more numerous, more strongly developed; larger species, about 9–13 mm. long, with a wing-length of about 11½–17 mm. 4
- (b) Antennal joint 3 (text-fig. 45) relatively shorter, usually more broadened basally, more knob-like or club-shaped at base, the apical half or more slender, the joint thus bulb- or club-shaped or even golf-driver-club-shaped; antennal joint 1 distinctly shorter, less or much less than twice length of joint 2; interocular space on vertex in ♂♂ distinctly very much narrower than length of antennal joint 1, usually separated by the small ocellar tubercle or by a space even narrower than tubercle; wings relatively broader, less elongate, usually less infuscated, the tinged or infuscated parts, if present, less extensive in relation to rest of wing-surface, or wings predominantly hyaline; discoidal cell relatively much shorter, broader; vein between submarginal cells usually without or with only a vestige of an appendix if it originates at right angles to third vein; hair on body predominantly whitish, that on body above without any or with less extensive black hairs, though the prealar bristles may sometimes be black; pale scaling on abdomen above in narrower, less conspicuous bands; spines on femora fewer and spicules on tibiae fewer, distinctly less strongly developed; smaller forms, usually less than 10 mm. long, with a wing-length less than 12 mm. 6
4. (a) Wings more yellowish brownish to pale chocolate brownish in anterior costal half including the entire first basal cell and extending across from a little beyond apex of costal cell across basal part of first submarginal cell, greater part of first posterior cell to base of second posterior cell, with the apical and hinder parts of wings, including greater part of second basal cell and the discoidal cell, more distinctly greyish, appearing clearer; sides of abdomen with more extensive and more conspicuous yellowish hair; transverse bands of pale scaling on abdomen above broader, more conspicuously brassy or golden yellowish; slightly smaller form, about 9–12½ mm. long, with wings about 11½–15 mm. long. ♂ ♀ *acutangula* Lw. (p. 181)
- (b) Wings darker, more extensively dark chocolate brownish to almost blackish, without any clearer or less-tinged, more greyish, apical part, either without any extensive

clearer parts in second basal and discoidal cells and hinder part or with these parts distinctly less contrasting with darker parts; hair on sides of abdomen on the whole darker, with less extensive yellowish ones, but with more numerous black ones; bands of pale scaling on abdomen above less conspicuously yellowish, more dull yellowish even in ♀♀; slightly larger forms, about 10–13 mm. long, with wings about 14–17 mm. long. 5

5. (a) Wings dark brownish to chocolate brownish, but with the greater part of second basal cell, discoidal cell, anal cell, axillary lobe and to a great extent also third and fourth posterior cells appearing clearer; hair on frons in front, sides of face and genae distinctly more sericeous yellowish, that on squamae more yellowish; transverse bands of pale scaling on abdomen above distinctly narrower, less evident; scaling on legs predominantly pale or more dull whitish. ♂ ♀ *acutangula* var. *transvaalensis* n. (p. 183)

- (b) Wings almost entirely very dark or blackish, the clearer areas in second basal cell, discoidal cell and posterior parts almost absent or inconspicuous, the anal and axillary cells being as dark as greater part of wings; hair on frons in front, sides of face and genae more whitish, that on squamae whitish; transverse bands of pale scaling on abdomen more conspicuous and distinctly more yellowish; scaling on legs darker. ♂ ♀ *neavei* Bezz. (p. 184)

6. (a) Wings more distinctly and more darkly infused with yellowish brownish to dark brownish in anterior costal half, the infusion occupying base, alula, costal cell and entire first basal cell or in addition also basal parts or halves of marginal and first submarginal cells and sometimes to a certain extent also second basal cell, and usually also with distinct, even if faint, spot-like infusions on apical cross veins of basal cells. 7

- (b) Wings predominantly glassy or vitreous hyaline, less infused anteriorly, with only the base, alula, costal cell and base or anterior basal part of first basal cell subopaquely yellowish whitish or yellowish and without any indication of spot-like infusions on apical cross veins of basal cells. 10

7. (a) Wings with the anterior basal two-thirds, comprising the base, alula, costal cell, more than basal half of marginal cell, basal part of first submarginal cell, entire first basal cell and second basal cell characteristically dark coffee brownish, the infusion well marked off from hyaline part; distinct, large, rounded spots on cross veins of basal cells and smaller ones at base of vein between discoidal and third posterior cells on apical cross vein of discoidal cell and at base of vein between submarginal cells; legs entirely yellowish or very pale yellowish brownish; antennal joint 3 more gradually broadened basally, more bulb-shaped at base, the lower basal part not very prominently bulging; black hairs present on sides of tergites 3 or 4 to apex and without any black hairs on antennae below; prealar bristles yellowish or reddish brownish. ♂ ♀ *dimidiata* n. sp. (p. 185)

- (b) Wings with the anterior basal two-thirds more diffusely and more faintly tinged yellowish brownish to brownish, the infusion, in ♀♀ especially, imperceptibly merging into the less-tinged parts though occupying the same area, with the basal parts of marginal and first submarginal cells usually predominantly hyaline or clear in ♂♂; spots on cross veins much smaller, fainter, less conspicuous; legs dark castaneous brownish or blackish brown and the tibiae, if paler, dark yellowish brownish or reddish brown; antennal joint 3 more rapidly broadened basally below, more golf-driver-club-shaped at base, the lower basal part more produced or more prominently bulging; black hairs present on sides of tergites 5 or 6 to apex and with or without black hairs on antennae below; two prealar bristles black. 8

8. (a) Wings with the untinged apical and hinder parts glassy or vitreous hyaline; tibiae scarcely or not much paler than the dark blackish brown femora; antennal joint 3 with the base below slightly less produced; dense or numerous black hairs on antennae below in ♂♂ and usually with fewer or without any black ones in ♀♀; black hairs or tufts on sides of abdomen confined to sides of tergites 5–7 (or 8); hair on body above and on sides of abdomen posteriorly in ♀♀ tinted sericeous yellowish to pale golden yellowish; more numerous and denser golden yellowish scaling above in ♀♀, the scaling occupying most of the discal part of abdomen and with the black scaling much reduced. 9

- (b) Wings with the untinged apical and hinder parts distinctly more greyish; tibiae yellowish brownish, distinctly much paler than dark femora; antennal joint 3 with the base below distinctly more prominently bulging; hairs on antennae below in ♀ without any dark ones; black hairs or tufts on sides of abdomen more conspicuous on sides of tergites 6-7; hair on body above straw-coloured or scarcely less white than that below; scaling above in ♀ with more black ones on abdomen, the pale ones more brassy yellowish, more concentrated across hind margins of tergites.
♀ *matabeleënsis* n. sp. (p. 188)
9. (a) Antennae below with some or numerous black hairs; sericeous whitish hairs on frons in front sparse and less extensive in both sexes. . . . ♂ ♀ *heterocoma* n. sp. (p. 186)
(b) Antennae below without any black hairs; sericeous whitish hairs on frons in front denser, more extensive. . . . ♀ var. of *heterocoma* n. sp. (p. 188)
10. (a) Tergites 5-7 (or 8) on sides with black hairs or tufts; hair on front part of thorax usually slightly tinted yellowish to yellowish brownish in certain lights and that on body above and sides of abdomen in ♀♀ often pale sericeous yellowish; alula and axillary lobe more reduced, the latter slightly narrower; first posterior cell more subparallel-sided, not narrowed apically. . . . 11
(b) Sides of abdomen entirely with sericeous whitish or straw-coloured hairs; hair on thorax (excepting dark collar hairs in some forms), body above and on sides of abdomen in known ♀♀ entirely sericeous whitish like that in ♂♂; alula and axillary lobe more developed, the latter markedly broad, more obtusely rounded; first posterior cell tending to be slightly narrowed apically. . . . 12
11. (a) Antennal joint 3 more rapidly broadened basally below, more golf-driver-club-shaped at base; hairs on antennae entirely white or pale above and below; hairs on front part of thorax tinted more yellowish to yellowish brownish and that on body above and sides of abdomen in ♀ more sericeous yellowish in certain lights; discoidal cell relatively shorter than first posterior cell; second posterior cell tending to be broader apically than third; interocular space on vertex in ♀ slightly narrower, a little less than twice width of ocellar tubercle. . . . ♂ ♀ *tenera* Lw. (p. 188)
(b) Antennal joint 3 more gradually narrowed basally below, more club-like or bulb-shaped at base; hairs on antennae above and below with numerous black ones; hairs on body above in ♀ paler sericeous yellowish or more whitish; discoidal cell longer, subequal in length to first posterior cell; second and third posterior cells tending to be equally broad apically; interocular space in ♀ very slightly broader, quite, or a little more than, twice width of tubercle. . . . ♀ *mitis* Lw. (p. 190)
12. (a) Tibiae dark like femora; basal joint of front tarsi in ♀♀ without any longish, bristly spicules below; first posterior cell as long as or longer than discoidal cell; hair on greater part of frons, even in ♀♀, not entirely sericeous or snow-whitish, that on at least basal half dark; white hair on body gleaming more sericeous whitish and the scaling in ♀♀ more brassy yellowish; frons in known ♀♀ distinctly less broad, less or much less than 3 times as broad as distance between outer margins of posterior ocelli on vertex; hair on frons in front more confined to sides of depression; smaller form, less than 8-9 mm. long, with wings less than 8-9 mm. long. . . . 13
(b) Tibiae pale yellowish or pale yellowish reddish; basal joint of front tarsi in ♀♀ with some distinct, longish, bristly spicules below; first posterior cell distinctly shorter than discoidal cell; hair on greater part of frons, in ♀♀ at least, entirely snow-whitish; hair on entire body snow-whitish, gleaming less and scaling above also more whitish; frons in ♀♀ remarkably broad, on vertex quite 3 times distance between outer margins of posterior ocelli; hair on frons in front denser, more uniformly distributed in depression; larger forms, about 8-9 mm. long, with a wing-length of about 8-9 mm.
♀ *latifrons* n. sp. (p. 191)
13. (a) Hair on body above and below and on abdomen gleaming sericeous whitish in both sexes, that on antennae below also sericeous whitish; two dark or black prealar bristles sometimes present; anterior frontal depression slightly deeper; first posterior cell slightly more narrowed apically. . . . ♂ ♀ *leucophasia* n. sp. (p. 192)
(b) Hair on thorax, especially antero-laterally, and that on sides of abdomen towards apex tinted slightly more sericeous yellowish, that on body below more straw-coloured in

certain lights, that on antennae below with distinct black hairs; all the prealar bristles pale; anterior frontal depression more shallow; first posterior cell not narrowed apically, more parallel-sided. ♂ *ovamboënsis* n. sp. (p. 194)

14. (a) Wings more extensively and more conspicuously infuscated, infused or deeply tinged yellowish brownish, brownish or blackish brown, this infuscation either uniform and diffused throughout the wings, or more or less in form of transverse bands or infusions occupying the basal or anterior basal two-thirds and, if more or less confined to anterior half, the infusion extends also into posterior or hinder parts as infusions along the veins between discoidal and posterior cells or also to a certain extent narrowly along the veins between posterior cells, the hinder part of wings thus not entirely clear or hyaline throughout. 15
- (b) Wings either less extensively or less distinctly infuscated, the infuscation confined to anterior half or costal part only and not extending into hinder parts, with no infusions along lower vein of discoidal cell and along veins separating posterior cells, these parts of wings entirely or predominantly hyaline or greyish hyaline, or the wings entirely or predominantly hyaline, only the extreme base, alula and costal cell tinged yellowish or yellowish brownish. 48
15. (a) Wings more uniformly infused or tinged yellowish brownish to brownish, the darker anterior half imperceptibly merging into less darkly tinged parts, there being no distinct tendency for transverse bands or infusions to be present or for the apical part to be more contrastingly hyaline or untinged and untinged and clearer contrasting cells not evident. 16
- (b) Wings not uniformly and diffusely tinged or infuscated throughout, the infusion either more or less in form of transverse bands or infusions of darker and more yellowish parts and, if tending to be more uniformly infuscated, the apical part or apical half, or some of the cells in the middle, contrastingly clearer or more hyaline. 20
16. (a) Wings more darkly and more uniformly infused with coffee brownish throughout, becoming slightly darker in anterior costal part, the slightly less-tinged hinder and axillary parts not tending to contrast with anterior part; hair on frons, sides of face, genae and on body above and below predominantly deep golden yellowish, the black hair on sides of abdomen less dense and conspicuous. ♀ *infusata* Bezz. (p. 209)
- (b) Wings, though tinged yellowish brownish or faintly brownish throughout, with the base, costal cell, more than basal halves of marginal and first submarginal cells and entire first basal cell distinctly more contrastingly darker, the apical, hinder and axillary parts thus appearing less infused; hair on frons in front more sericeous whitish or silvery, that on antennae below, sides of face and on genae also more sericeous whitish and, if yellowish, wings not so uniformly tinged, that on rest of body either predominantly paler or more straw-coloured and, if golden, hair on frons is white, with the black hair on sides of abdomen denser, more conspicuous or tuft-like. 17
17. (a) Proboscis shorter, its labellar lobes broader, short, very much shorter than antennal joint 3, ovoid and like two cupped hands when opened; face not raised or convex medially; antennal joint 3 more gradually thickened basally; hair paler, sericeous whitish on body below, gleaming more straw-coloured whitish or yellowish above; black tufts only on sides of tergites 5-8; outer apical aspect of hind femora with more, 5-7, spines. ♂ *brunnitincta* n. sp. (p. 210)
- (b) Proboscis longer, its labellar lobes elongate, at least as long as, or longer than, antennal joint 3, narrow and pointed apically, not like two cupped hands when opened; face more distinctly convex medially; antennal joint 3 more rapidly bulb-like basally; hair more sericeous yellowish to golden yellowish above and either sericeous yellowish or less contrastingly whitish below; black hairs present on sides of tergites 2-7 (or 8) and, if confined posteriorly, hair is not white below; outer apical aspect of hind femora with fewer, only about 2-4, spines. 18
18. (a) Hairs on frons in front pale sericeous yellowish, the black ones on sides of abdomen confined to sides of tergites 5-8; palps long, nearly or about as long as antennae; apical vein of discoidal cell joining first posterior cell not opposite base of vein between submarginal cells; larger form, about 11 mm. long, with a wing-length of about 13 mm. ♂ *vicinalis* n. sp. (p. 249)

- (b) Hairs on frons in front gleaming sericeous whitish, the black ones on sides of abdomen present on sides of tergites 2-7 (or 8); palps shorter or much shorter than antennae; apical vein of discoidal cell joining first posterior cell at a point about opposite that of base of vein between submarginal cells; smaller forms, usually less than 11 mm. long. 19
19. (a) Hair on almost entire frons and even greater part of ocellar tubercle, on antennae below, sides of face and genae gleaming sericeous or silvery whitish; that on body above slightly paler sericeous yellowish; that on pleurae distinctly more whitish in certain lights; three prealar bristles black; black hair on sides of abdomen very much denser, more conspicuous, more tuft-like; scaling above paler sericeous yellowish; first posterior cell more narrowed apically, distinctly much shorter than discoidal cell; proboscis slightly longer, about 3 mm. long, not visibly spinulated below; antennal joint 3 slightly longer, its styliform part almost 3 times as long as bulb-like base; middle and hind femora with about 3 or 4 spines; basal joint of front tarsi in ♀ without any longish bristle-like spicules below. ♀ *fucatiipennis* n. sp. (p. 211)
- (b) Hair on only anterior half of frons conspicuously silvery whitish, that on antennae below and sides of face gleaming sericeous yellowish to deep yellowish, also with numerous black hairs on inner lower aspect of antennae and those on genae more sericeous yellowish; that on body above deeper yellowish or golden and that below scarcely paler; prealar bristles yellowish; black hairs on sides of abdomen not very dense or tuft-like; scaling above gleaming deeper golden yellowish; first posterior cell more parallel-sided, subequal in length to, or only a little longer than, discoidal cell; proboscis slightly shorter, about 1.6-2 mm. long, distinctly finely spinulated; antennal joint 3 slightly shorter, its styliform part relatively shorter, less than 3 times length of bulb-like base; middle and hind femora with only about 1 or 2 and 2 spines respectively; basal joint of front tarsi in ♀ with distinct, longish, bristle-like spicules below. ♀ *pulchriceps* var. *tinctella* n. (p. 276)
20. (a) Wings with a characteristic infuscation, either in the form of three more or less well defined transverse bands of which the broad medial one is subopaquely yellowish and the broad preapical band and somewhat broken-up basal one are dark, blackish brown to almost purplish brown, or infuscation in form of a very broad preapical blackish brown or purplish brownish band and an equally broad blackish brown base, separated by a subopaquely yellowish medial band which does not extend across to hind border, the preapical band in both cases occupying and extending across almost entire apical half of marginal cell, greater medial or preapical part of first submarginal cell, basal half of second submarginal cell, entire or almost entire first posterior cell and across greater part of first basal cell and apical part of discoidal cell to hind border, the dark basal infuscation conspicuous in basal half of first basal cell and again in apical half or part of anal and axillary cells, the apex of wings and greater part of axillary lobe being clear or greyish hyaline and the alula and sometimes second basal cell yellowish like the middle band; antennal joint 3 with its slender styliform part markedly slender, fine, almost bristle-like. 21
- (b) Wings with a different pattern, not so characteristically marked with three, distinct, broadish, transverse bands and, if with a tendency for three bands to be present, these are not so well marked off and preapical band not so well defined, or much narrower, more broken up, appearing more jagged and extending only from about end of costal cell across apical part of discoidal cell towards hind border, leaving a very much larger apical area clear or vitreous hyaline in at least apical third of wings and the dark basal infuscation is practically confined to basal half of first basal cell, the anal and axillary cells being clear or hyaline, not distinctly infuscated apically; antennal joint 3 with its styliform part usually thicker, not so fine and bristle-like and, if fine, infuscation in wings different. 22
21. (a) Wings with the three transverse bands more distinct and more well defined, the broad medial band broader, more subopaquely yellowish and extending to, or very near to, hind border and thus delimiting a well-defined broad preapical band and the second basal cell also yellowish like middle band; hair on frons, antennae below, face, genae and on body above predominantly deeper yellowish, golden yellowish to deep orange

yellowish; that on sides of abdomen usually gleaming very deep reddish golden or orange golden; black hair on sides of abdomen less extensive, confined to terminal part on sides of tergites 6-7 (or 8); tibiae dark, not or scarcely visibly paler than black femora; palps much longer, subequal in length to antennal joint 3.

♂ ♀ *pictipennis* (Wied.) (p. 212)

- (b) Wings (text-fig 57) with the three bands less distinct and delimited, the narrower medial band more subopaquely yellowish whitish and not continued beyond discoidal cell, in which cell it becomes very conspicuous as an elongated subopaquely whitish spot, the dark preapical band thus continuous with dark basal infuscation along hinder part of wings and across posterior cells and the second basal cell not yellowish, but dark like basal half of first basal cell, fourth posterior cell and apical half of anal cell; hair on head in front and on body above predominantly sericeous whitish or very pale sericeous yellowish, scarcely contrasting much with the whitish hair on pleurae and body below; that on sides of abdomen also distinctly more whitish; black tufts on sides of abdomen more extensive, more conspicuous and even present on sides of tergites 3-7 (or 8); tibiae distinctly very much paler, pale yellowish brownish or yellowish; palps very much shorter, much shorter than antennal joint 3.

♂ ♀ *phaenostigma* n. sp. (p. 215)

22. (a) Hair on thorax and scutellum above without any intermixed black or blackish hairs; sides of abdomen without any extensive black hairs or tufts and these, if present, more or less confined to sides of tergites 5-7 (or 8) or posteriorly; hairs on body above and sides of abdomen usually more distinctly and more conspicuously yellowish to deep yellowish or orange yellowish, rarely whitish; infuscated parts in wings paler, more yellowish or yellowish brownish. 23
- (b) Hair on thorax and scutellum above with some, or numerous, intermixed dark or blackish bristly hairs and, if without, sides of abdomen with distinctly more extensive black hairs or tufts on sides of tergites 2 or 3-7 (or 8); hairs on body above and on sides of abdomen distinctly paler, usually more whitish, appearing more greyish white or only pale sericeous yellowish; infuscated parts in wings on the whole darker, more brownish, dark brown to dark coffee brownish. 36
23. (a) Infuscation in wings more extensive or more diffused, sometimes more uniform, either with only the apex, apical part or almost apical half clearer or clear hyaline, or with the apical part, second basal cell to a variable extent, discoidal cell to a variable extent, part of or greater part of anal cell and to a large extent axillary lobe distinctly clearer or more hyaline, the hinder part of wings, in region of posterior cells, however not predominantly hyaline, but also more or less tinged to a variable extent, or at least more conspicuously and more extensively infused along posterior veins. 24
- (b) Infuscation in wings less extensive, less uniform in colour, more broken up into yellowish and brownish and even tending to show an ill-defined, darker, preapical, transverse band, with at least apical third, hind border or hinder part in region of posterior cells and axillary, anal, discoidal and second basal cells predominantly or entirely hyaline or vitreous hyaline and the infusions along posterior veins much reduced or absent and, if indicated, with a tendency for a dark preapical band and a yellowish medial band to be present. 32
24. (a) Wings not dimidiately infuscated, the clearer or clear apical part less extensive, the infuscated parts thus more extensive, extending in apical part from about end of costal cell or even from beyond it either diffusely or irregularly across to first posterior cell, the base of second submarginal cell always more or less infuscated to a variable extent and the second basal, discoidal, greater part of or entire anal and axillary cells contrastingly clearer or more hyaline. 25
- (b) Wings distinctly more dimidiately infuscated, the apical third or sometimes almost the apical half being hyaline and the infuscated basal two-thirds, or a little more than basal half, thus less extensive, but distinctly more uniformly yellowish brownish or brownish and more delimited or marked off from clear apical part, the apical boundary of infuscated part more or less straight across and not encroaching upon base of second submarginal cell and the second basal and discoidal cells usually less contrastingly clearer than darker costal part. 30

25. (a) Wings distinctly more extensively and to a certain extent more uniformly infuscated dark reddish brownish or dark brown, the costal cell and basal halves of marginal and first submarginal cells also darker yellowish, with only the extreme apical part, the middle parts of posterior cells and basal three-quarters of axillary lobe clearer or more whitish and greater part of discoidal cell, second basal cell, more than basal half of anal cell subopaquely pale yellowish; hair on front part of frons in both sexes, on antennae below in ♀ and squamal fringe more sericeous yellow or pale golden; rest of hair on body above golden yellowish, becoming more fulvous or orange yellowish on sides of abdomen posteriorly. ♂ ♀ *fulva* n. sp. (p. 222)
- (b) Wings distinctly less extensively, less uniformly and less darkly infuscated, the costal cell and almost basal halves of marginal and first submarginal cells paler yellowish, with a more extensive apical part or even apical half, more extensive middle parts, or even greater part, of posterior cells and greater part of anal and axillary cells clearer or more hyaline, the discoidal and second basal cells also clearer; hair on front of frons more whitish, usually sericeous white in ♂♂ and in ♀♀ more whitish anteriorly, with the pale hairs below antennae, if present, white and the squamal fringe white; rest of hair on body above either paler yellowish or, if deep golden, fulvous or orange, wings not extensively and very darkly infuscated. 26
26. (a) Legs very pale yellowish brownish or reddish brownish and, if femora are slightly darker than tibiae, they nevertheless show much yellowish or reddish brownish, sometimes preapically; larger forms, about 14–16½ mm. long, with a wing-length of about 15–19½ mm. 27
- (b) Legs entirely dark or blackish; smaller forms, about 11½–13 mm. long, with a wing-length of about 12–14 mm. 28
27. (a) Wings slightly narrower, their apices more pointed, the clearer apical part less extensive and distinctly more whitish, the second basal, discoidal and greater part of anal cells more subopaquely whitish; vein between discoidal and second posterior cells short, straight; intermixed blackish or blackish brown hairs on antennae below; hair on body above gleaming deeper yellowish to deep golden yellowish, that in front of wing-bases yellowish or even orange yellowish and that on sides of abdomen sometimes also more orange yellowish; hind margins of sternites rather broadly, more conspicuously pallid or yellowish; legs very pale yellowish brownish or more yellowish. ♂ *longitudinalis* Lw. (p. 218)
- (b) Wings distinctly broader, less sharply pointed, the clearer apical part more extensive, more greyish hyaline, the second basal, discoidal, anal and axillary cells also more hyaline; vein between discoidal and second posterior cells longer, more S-curved; hair on antennae above and below entirely sericeous whitish; hair on body above paler, gleaming more sericeous whitish, that in front of wing-bases and on sides of abdomen very pale sericeous yellowish in certain lights, sericeous whitish in others; hind margins of sternites very narrowly pallid; legs more reddish brownish. ♂ *bevisii* n. sp. (p. 220)
28. (a) Infuscation in wings less extensive, less dark, paler yellowish brownish, the middle of posterior cells clearer, the infuscation not extending very much beyond end of costal cell or cubital fork, leaving a larger apical part of wings uninfuscated, the greater part or apical half of first posterior cell being also uninfuscated; second basal cell either entirely or almost entirely clearer; vein between discoidal and second posterior cells longer, more sinuous and S-curved; second posterior cell much broader apically than third; axillary lobe broader, more rounded posteriorly; black hairs present only on sides of tergites 6–7 (or 8); stylar part of antennal joint 3 distinctly shorter, shorter than joint. 29
- (b) Infuscation in wings more extensive, much darker, more brownish, the middle parts of posterior cells distinctly less clear, the infuscation extending considerably beyond end of costal cell and cubital fork and across to apex of first posterior cell (the entire cell being more or less infused); second basal cell only clearer apically; apical vein of discoidal cell very much shorter, substraight or only feebly sinuous; second and third posterior cells equal or subequal in width apically; axillary lobe much narrower, less

rounded posteriorly; black hairs present on sides of tergites 5-7 (or 8); stylar part of antennal joint 3 more slender, longer, as long as or even slightly longer than joint.

♂ ♀ *apicalis* n. sp. (p. 220)

29. (a) Hair on body above and on sides of abdomen predominantly sericeous yellowish, yellowish to deep golden yellow, that in front of wing-bases even deeper golden and that on sides of abdomen posteriorly, especially in ♀, even more orange golden; hair on pleurae in a conspicuous tuft just below wing-base, on squamae and on venter snow-whitish, contrasting conspicuously with yellow or golden hair above; pale scaling on abdomen above gleaming brassy to golden yellowish; labella of proboscis much longer, much longer than antennal joint 3; first posterior cell distinctly more narrowed apically; femora with more numerous spines along outer lower part of middle and hind ones. ♂ ♀ *monticola* n. sp. (p. 223)
- (b) Hair on body above and on sides of abdomen predominantly gleaming sericeous whitish, only that in front of wing-bases on sides of thorax tinted slightly straw-coloured yellowish, that on sides of abdomen sericeous whitish; the more snow-whitish hair on pleurae not contrasting much with that above; pale scaling above, where present, gleaming slightly more sericeous yellowish to whitish; labella shorter, only about or scarcely as long as antennal joint 3; first posterior cell less narrowed, but broadened, apically; femora with fewer spines along outer lower aspect of middle and hind ones. ♀ *sericosoma* n. sp. (p. 225)
30. (a) Wings (text-fig. 63) comparatively longer, the basal comb more developed, the infuscation in more or less the basal two-thirds slightly less uniform, the second basal and discoidal cells slightly, though distinctly, paler, more yellowish than brownish, sometimes even tending to be more hyaline, the anal and axillary cells and greater part of third and fourth posterior cells distinctly more hyaline or greyish hyaline and not distinctly tinged throughout; styliform part of antennal joint 3 longer, about or almost 2 times as long as bulb-like base; hair on the whole more straw-coloured yellowish above, with some black hairs on antennae below in ♂ and with black ones on sides of tergites 5-7 (or 8); tibiae paler, more yellowish. ♂ ♀ *chraecoptera* n. sp. (p. 226)
- (b) Wings comparatively shorter and broader, the basal comb more reduced, the infuscation in slightly less than basal two-thirds more uniformly yellowish brownish or pale brownish, gradually and almost imperceptibly becoming paler posteriorly, the second basal and discoidal cells thus not contrastingly paler, the anal and axillary cells and third and fourth posterior cells thus not hyaline but distinctly, though faintly, tinged throughout; styliform part of antennal joint 3 slightly shorter, scarcely or only about $1\frac{1}{2}$ times length of bulb-like base; hair, especially in ♀♀, deeper and more golden yellowish above and on sides of abdomen, without any black ones on antennae below and either without any black ones on abdomen or with only a few on sides of tergites 6 and 7 (or 8); tibiae darker, either dark or more reddish brownish. 31
31. (a) Infuscation in wings slightly paler yellowish brownish, more delimited from hyaline apical part; discoidal cell more truncate apically; some distinct black hairs or tufts on sides of last two or three tergites; hair on thorax above and sides of abdomen, in ♂ at least, paler, more straw-coloured; labella of proboscis shorter, shorter than antennal joint 3 and without visible spinules on basal part of proboscis. ♂ ♀ *hemichroa* n. sp. (p. 228)
- (b) Infuscation in wings slightly darker brownish, less marked off from apical part, the apical part of infusion appearing darker and sub-band-like across wings; discoidal cell distinctly more angularly pointed apically; sides of abdomen without any black hairs; hair on thorax above and sides of abdomen in ♂ distinctly golden yellowish; labella very long, longer than antennal joint 3 and both it and base of proboscis with distinct spinules. ♂ *semiclara* n. sp. (p. 229)
32. (a) Wings (text-fig. 67) with a fairly characteristic pattern, consisting of a subopaquely yellowish infusion at base and along costal part, extending across from apex of costal cell in form of a distinct, somewhat darker, more brownish, jagged and irregular preapical band, the darker brownish of this preapical band being more evident as infusions along veins in this region, the second basal and discoidal cells more or less

- clear like hinder parts, but with narrowish infusions along veins separating discoidal and third posterior cells and sometimes also along vein between third and fourth posterior cells. 33
- (b) Wings (text-figs. 63, 69) with the infuscated parts either in form of a more or less subopaquely yellowish whitish infusion in anterior half up to end of costal cell, or in form of a more uniform yellowish or brownish dimidiate infuscation in anterior basal two-thirds, there being no distinct and more or less contrasting darker preapical band, the second basal and discoidal cells either clear hyaline or scarcely clearer than anterior infusion. 35
33. (a) Hair on frons anteriorly and on antennae below with a more distinct and deeper sericeous yellowish to yellowish tint; that on thorax and body above distinctly deeper yellowish, deep golden to orange yellowish; that on sides of abdomen strikingly orange yellowish in both sexes; that on pleurae and venter straw-coloured whitish; that on squamae distinctly yellow; sparse black hairs only on sides of tergites 6-8 in ♂ or on sides of 7 in ♀; pale scaling above also deeper yellowish; discoidal cell subacute or subtruncate apically; tibiae darker, more dark reddish brownish or blackish brown.
 ♂ ♀ *pseudofasciata* n. sp. (p. 229)
- (b) Hair on frons, antennae below, face and genae gleaming sericeous whitish or yellowish to a lesser extent; that on thorax and body above distinctly paler, gleaming more pale sericeous yellowish, straw-coloured yellowish or creamy; that on sides of abdomen very much paler, sericeous whitish in ♂♂ to sericeous yellowish or creamy in ♀♀; that on pleurae and venter distinctly more contrastingly sericeous white; that on squamae sericeous whitish to creamy; more numerous black hairs on sides of tergites 4-7 (or 8) and, if without black ones, hair on sides not very deep golden or orange yellowish; pale scaling above gleaming much paler sericeous yellowish; discoidal cell distinctly more acute apically; tibiae usually paler, more yellowish. 34
34. (a) Tibiae distinctly paler, more pale yellowish brownish; first posterior cell less narrowed, broader apically, about as broad there as length of middle cross vein; hairs in ♀ without any black ones on sides of abdomen, only a few being present on last tergite.
 ♀ *grahami* n. sp. (p. 232)
- (b) Tibiae darker, more reddish brownish or dark castaneous brownish; first posterior cell distinctly more narrowed apically, more spindle-shaped, its apical width less than length of middle cross vein; hairs in ♂ with black ones on sides of tergites 4-8 and in ♀ on sides of 4 (or 5)-7.
 ♂ ♀ *asaphodesma* Hesse (p. 233)
35. (a) Wings (text-fig. 69) with the base, costal cell, basal half of marginal cell and entire first basal cell subopaquely yellowish whitish to very pale yellowish brownish, with narrow infusions along veins between discoidal and second, third and fourth posterior cells, and on vein between second basal and fourth posterior cells, the infused parts of wings thus appearing broken up; interocular space in front of tubercle in ♂ broader, at least as broad as length of antennal joint 2 and on vertex in ♀ about 1·7 times distance between outer margins of posterior ocelli; larger form, about 12½-14 mm. long, with a wing-length of about 14-15½ mm.
 ♂ ♀ *mollivestis* n. sp. (p. 234)
- (b) Wings (text-fig. 63) more or less dimidiately infuscated, the anterior basal two-thirds more or less uniformly yellowish brownish to brown, the apical part of infusion well marked off from the more hyaline part and with the infusion occupying the base, alula, costal cell, basal halves of marginal and first submarginal cells, entire first basal cell, second basal cell to a certain extent and discoidal cell and even extending as infusions along veins separating discoidal cell from posterior cells, the infusion on apical cross vein of second basal cell larger, more spot-like; interocular space in ♂, at narrowest part, much narrower than length of antennal joint 2 and in ♀ about, or a little more than, 2 times distance between outer margins of posterior ocelli; smaller species, about 8-11½ mm. long, with a wing-length of about 9½-13 mm.
 ♂ ♀ *chraecoptera* n. sp. (p. 226)
36. (a) Hair on thorax and scutellum above without any intermixed black ones, entirely sericeous whitish or yellowish. 37
- (b) Hair on thorax above or also on scutellum with distinct, fine, intermixed, black ones, sometimes only visible on sides discally or basally. 44

37. (a) Black hairs or tufts on abdomen present on sides of tergites 3 or 4 or 5 to 7 (or 8); tibiae paler, more conspicuously yellowish or pale yellowish brownish; infuscation in wings more yellowish, yellowish brownish or brownish and, if dark, costal cell more yellowish. 38
- (b) Black hairs or tufts on abdomen present on sides of tergites 2-7; tibiae much darker, dark brownish or even blackish brown; infuscation in wings darker, dark blackish brown. ♀ var. of *liturata* Lw. (p. 244)
38. (a) Wings very darkly and more extensively infuscated, the clear apical area being less extensive, the infuscation extending to slightly beyond apex of costal cell and sometimes also more extensively along posterior veins or even hinder part may be predominantly infused, with a tendency for the clearer area in discoidal cell to be conspicuous as a more or less elongated clear eye-like spot and with the greater part of anal and axillary cells and sometimes also greater part of second basal cell also clearer like apical part. 39
- (b) Wings usually less dark, paler yellowish brownish or brownish in anterior two-thirds, thus less extensively infuscated, the clear apical area more extensive, the infuscation ending at about level of apex of costal cell and an infusion, if present in hinder parts of wings, only narrowly confined as an infusion along veins separating discoidal cell from posterior cells, the greater part of wings posteriorly thus clear or hyaline like apical part and the anal, axillary and fourth posterior cells, with the clear discoidal and second basal cells thus not conspicuous as isolated eye-like spots. 41
39. (a) Wings (text-fig. 57) with a more distinct tendency for the extensive dark blackish or purplish brown infuscation to be broken up by an abbreviated, medial, subopaquely yellowish whitish, transverse band marking off a dark basal part and a very broad uniformly dark preapical part, occupying practically the entire apical half of marginal cell, greater medial part of first submarginal cell, basal half of second submarginal cell, almost entire first posterior cell, entire second posterior cell and the apical part of discoidal cell, with the hinder part of wings also entirely dark like preapical part, and the second basal, fourth posterior and apical half of anal cells also dark, with the elongated subopaquely whitish area in discoidal cell thus appearing as a more conspicuous isolated spot; apical part of second main vein less sinuous and recurved. ♂ ♀ *phaenostigma* n. sp. (p. 215)
- (b) Wings with the extensive dark blackish brown infuscation either more uniform and, if tending to be broken up by a medial subopaquely yellowish band, the dark preapical band or part is distinctly less uniformly extensive and does not occupy all these cells or border their veins to the same extent, with the hinder part of wings less infused, being very dark only along the veins, the second basal, greater part or entire fourth posterior, the entire or greater part of anal and entire axillary cells more conspicuously clear or hyaline, with the elongated whitish hyaline area in discoidal cell, though evident, thus less isolated and both it and the second basal cell appearing clear; apical part of second vein distinctly more deeply sinuous and more recurved. 40
40. (a) Infuscation in anterior part of wings more uniform, scarcely or not broken up by a medial transverse yellowish region, extending apically to end of second vein and thus occupying greater part of marginal cell and also extending across basal part of second submarginal cell and greater part of first posterior cell, the apical more hyaline part thus less extensive; hair on antennae below with numerous or a distinct tuft of black ones; that on body above distinctly more yellowish, especially on sides of abdomen, contrasting more with whitish ones on pleurae and venter; black tufts on sides of abdomen less dense, less conspicuous and usually present on sides of tergites 2-7 (or 8). ♂ ♀ *mesoleuca* n. sp. (p. 217)
- (b) Infuscation in anterior part of wings less uniform, more distinctly broken up in middle by a transverse subopaquely yellowish area into a dark blackish brown preapical part and a similarly coloured basal part, the preapical band not extending to apex of marginal cell nor across base of second submarginal cell or greater part of first posterior cell, the more hyaline apical part thus distinctly more extensive and also with the basal part of first submarginal cell subopaquely whitish like elongate area in discoidal cell;

- antennae below without any black hairs; hair on body above and on sides of abdomen predominantly more whitish, only the prealar, postalar and scutellar bristles gleaming yellowish to golden, the hair above not contrasting much with white ones below; black hairs on sides of abdomen more conspicuous, denser, more tuft-like and present on sides of tergites 3-8. ♂ ♀ (especially ♂) *phaenostigma* n. sp. (p. 215)
41. (a) Larger form, about 11½-14 mm. long, with a wing-length of about 13-15 mm.; basal comb more strongly developed; base, costal cell, basal halves of marginal and first submarginal cells and first basal cell in wings distinctly much paler, more subopaquely yellowish, only apical part of this infusion transversely darker and band-like from end of costal cell across to apex of discoidal cell, this dark part emphasized along veins in this region; tibiae, though reddish yellowish, tending to be less conspicuously pale. ♂ ♀ *asaphodesma* Hesse (p. 233)
- (b) Smaller species, less than 11 mm. long, with a wing-length less than 13 mm.; basal comb smaller; infuscation in wings occupying base, costal cell, basal halves of marginal and first submarginal cells and entire first basal cell and also extending as a narrow infusion along lower vein of discoidal cell darker, more uniformly brownish to dark brownish, without a well-defined, transverse, band-like preapical part; tibiae paler, more conspicuously yellowish. 42
42. (a) Antennal joint 3 more gradually broadened basally, more leek-shaped at base, its styloform part not very fine; face more convex medially, slightly subconically prominent apically; hair on antennae below gleaming more sericeous yellowish and usually with a few distinct black ones below; hair on thorax above and on sides of abdomen straw-coloured yellowish, sericeous yellowish to yellowish, contrasting with the whitish ones on pleurae and venter; infuscation in wings more yellowish brownish, the second basal and discoidal cells on the whole clearer. ♂ ♀ *kaokoana* n. sp. (p. 236)
- (b) Antennal joint 3 more rapidly broadened basally below, more bulb-shaped at base, its styloform part slightly longer, finer; face scarcely convex medially, not subconically prominent apically, but sloping down to buccal cavity; hair on frons in front, antennae below and on sides of face gleaming conspicuously snow-whitish; that on thorax above and sides of abdomen also snow-whitish like that on body below; infuscation in wings distinctly darker, more blackish brown, with a tendency for greater part of second basal and discoidal cells to be infused or clouded. 43
43. (a) Hair on antennae below entirely sericeous whitish; that in collar without any or with fewer dark hairs; black hairs on sides of abdomen distinct and conspicuous on tergites 4-7; antennal joint 3 with broad base smaller, its styloform part relatively longer; labella of proboscis relatively shorter, shorter than basal part; tibiae much paler, more yellowish. ♀ *nivosa* n. sp. (p. 238)
- (b) Hair on antennae below with distinct intermixed black hairs; that in collar-region with conspicuous dark ones; black hairs on sides of abdomen distinct and conspicuous only on tergites 5, 6 and 7; antennal joint 3 with a much broader base, more bulb-like, its stylar part relatively shorter; labella of proboscis relatively longer, subequal in length to basal part; tibiae in ♀ at least much darker, not conspicuously yellowish. ♂ ♀ *basutoënsis* n. sp. (p. 239)
44. (a) Infuscated parts in wings less dark, appearing broken up into more or less three ill-defined transverse bands, due to the basal half of costal cell and basal half of first basal cell and a preapical, irregular, band-like infusion across wings being visibly darker and more brownish and these being separated by a subopaquely yellowish whitish medial band which occupies the apical half of costal cell, basal halves of marginal and first submarginal cells and to a lesser extent also apical half of first basal cell and which is more discernible when viewed obliquely from behind; tibiae distinctly paler, more yellowish or reddish yellow and even femora more castaneous or dark reddish brownish. 45
- (b) Infuscated parts in wings on the whole darker, more coffee brownish to blackish brown, appearing less broken up into transverse bands, a broadish, medial, yellowish area not or scarcely evident, the infusion in entire costal cell, more than basal half of marginal cell and entire first basal cell being more uniformly brownish or dark brownish, only

the basal half of first submarginal cell sometimes clear like discoidal and second basal cells; tibiae distinctly darker, dark reddish brownish to almost black like the femora.

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45. (a) Wings (text-fig. 73) distinctly tinged greyish or smoky greyish throughout, only discoidal and second basal cells appearing more hyaline, the alula, base, costal cell, basal part of first basal cell slightly yellowish, with an indistinct, darker, preapical band from end of costal cell across to base of second posterior cell, a slight cloudiness along posterior veins and also along vein between anal and axillary cells and spot-like infusions on apical cross veins of basal cells; pale hair on sides of abdomen distinctly deeper golden yellowish or orange golden on tergites 4-8; scaling on sides of these tergites also orange golden; hair on antennae below with fewer black ones and black ones on sides of tergites 2 or 3-8 less conspicuous and less dense; tibiae and apices of femora distinctly paler, more yellowish; antennal joint 3 shorter, its broadened base more gradually broadening and its styliform part relatively shorter, only about a third length of joint. ♂ *glaucciella* n. sp. (p. 240)
- (b) Wings without a distinct smoky greyish background, the uninfuscated parts clearer greyish hyaline, with a fairly distinct pattern, consisting of a yellowish brownish infusion at base, basal half of costal cell and basal half of first basal cell and another somewhat irregular, preapical, transverse infusion separated by a broadish subopaque yellowish to yellowish whitish transverse band or area occupying apical half of costal cell, basal halves of marginal and first submarginal cells and to a lesser extent apical half of first basal cell, the preapical infusion also more evident along veins in this region; pale hair on sides of apical half of abdomen pale yellowish or more whitish to pale sericeous yellowish; pale scaling on sides also more sericeous yellowish; hair on antennae below with more numerous black ones in a tuft, especially in ♂, and with the black ones on sides of tergites 2 or 3-7 (or 8) distinctly denser, more conspicuous; tibiae and apical parts of femora more yellowish brownish or reddish brown; antennal joint 3 longer, its base more rapidly broadened and its styliform part longer than a third of the length of joint. ♂ ♀ *liturata* Lw. (p. 241)
46. (a) Hair on antennae below tinted distinctly more yellowish and also with more numerous black ones; that on thorax and scutellum above and on sides of abdomen in posterior half gleaming distinctly more brownish golden or even golden, with more numerous intermixed black hairs on thorax anteriorly, discally and on scutellum, and also with intermixed reddish golden ones on thorax above and in mesopleural tuft; prealar, postalar and scutellar bristles more reddish golden; sides of tergites 2-7 (or 8) with tufts of black hairs; infuscated parts in wings coffee brownish, the costal cell more opaquely yellowish, the basal half of first submarginal cell appearing distinctly clear like second basal and discoidal cells and the more hyaline apical part of wings less whitish in certain lights. ♂ ♀ var. of *liturata* Lw. (p. 243)
- (b) Hair on antennae below distinctly more sericeous whitish like rest of hair on face and frons anteriorly, without any or with much fewer black ones below; that on thorax and sides of abdomen gleaming more sericeous whitish or straw-coloured, scarcely or not contrasting with the white ones below, with the fine intermixed black hairs on thorax less evident and almost confined to disc or sides and sometimes also on scutellum, without any or with fewer reddish golden hairs; thoracic bristles more yellowish; only sides of tergites 3-7 (or 8) with tufts of black hairs; infuscated parts in wings (text-fig. 76) duller brownish, the entire first basal cell and to great extent also basal half of first submarginal cell more uniformly coloured, the latter cell thus not as clear as second basal and discoidal cells and the more hyaline apical part of wings appearing distinctly more subopaque whitish. 47
47. (a) Hair above predominantly whitish or sericeous whitish and thus scarcely tinted more yellowish than that on body below, only that on sides of abdomen posteriorly sometimes tinted more yellowish; that on disc of thorax distinctly more shaggy, with a less shorn-off appearance, the fine black ones on disc more obvious and sometimes also with intermixed black ones on scutellum; black hairs on sides of abdomen longer, sparser, less tuft-like; wings (text-fig. 76) with the hyaline apical part more subopaque whitish in certain lights and with the brownish infusion along lower vein of discoidal

cell also present along apical cross vein of the cell and along the veins separating second and third and third and fourth posterior cells. . . . ♂ ♀ *grisealis* n. sp. (p. 244)

- (b) Hair above gleaming distinctly more straw-coloured yellowish or greyish yellowish, distinctly contrasting with the whiter ones on body below; that on disc of thorax distinctly shorter, with a much more distinct shorn-off appearance, with more yellowish intermixed hairs and with fine, short, blackish brown ones present only on sides of thorax discally and without any black hairs on scutellum; black hairs on sides of abdomen comparatively shorter, much denser, in form of more distinct dense tufts; wings (text-fig. 77) with the hyaline apical part appearing less whitish and with the brownish infusion along lower vein of discoidal cell not continued along apical cross vein of that cell and along vein between second and third posterior cells.

♂ *crossodesma* n. sp. (p. 245)

48. (a) Infuscation in wings in both sexes more or less dimidiate, occupying the base, costal cell, basal parts or halves of marginal and first submarginal cells, entire or greater part of first basal cell and sometimes also second basal cell and which is usually emphasized as spot-like infusions on apical cross veins of basal cells even if infusion is not present in basal part of first submarginal and second basal cells; basal comb usually more strongly developed; first posterior cell more often markedly narrowed apically and sub-spindle-shaped, more frequently shorter or very much shorter than discoidal cell and, if longer, infusion is dimidiate; alula rarely not comparatively more developed, broader, its lobe at base of axillary lobe usually broader, more conspicuous. . . . 49
- (b) Infuscation in wings distinctly less extensive, the wings more frequently hyaline for the greater part, the infusion usually confined to base and costal part, occupying only base, alula, costal cell and to a variable extent first basal cell and, if more extensive as in some ♀♀, spot-like infusions on apical cross veins of basal cells are wanting and other wing-characters do not differ; basal comb more frequently much reduced or vestigial; first posterior cell usually less narrowed apically, usually sub-parallel-sided and broadly open, more elongate, usually either only a little shorter than, or subequal in length to, or much longer than discoidal cell; alula more reduced and, if tending to be well developed, rest of wing-characters do not differ. . . . 57
49. (a) Wings less extensively infuscated longitudinally, with the base, costal cell, basal parts or bases of marginal and first submarginal cells, greater part of first basal cell, second basal cell and bases of discoidal and fourth posterior cells infused or tinted pale yellowish brownish, this infusion thus occupying more or less anterior basal half of wings; first posterior cell distinctly much longer than discoidal cell, the latter rectangularly truncate apically, its apical vein straight and very oblique to hind margin; hair above and below predominantly and conspicuously snow-whitish or sericeous whitish, the only dark hairs being the blackish ones on basal half of frons, some on antennae below and the black tufts on sides of tergites 4 (or 5)-7 (or 8). . . . ♂ ♀ *albicoma* n. sp. (p. 246)
- (b) Wings more extensively infuscated longitudinally, at least or more than basal halves of marginal and first submarginal cells, entire first basal cell being infuscated brownish, the bases of discoidal and fourth posterior cells being less darkly tinged than costal half, or even clear and the infusion more or less confined dimidiate to anterior half; first posterior cell subequal to, or shorter than, discoidal cell, the latter subacute or acute apically, its apical vein slightly sinuous and subparallel or less oblique to hind border; hair not entirely snow-whitish above and below and, if whitish, there are black hairs on antennae below and more extensive black ones or tufts on sides of abdomen. . . . 50
50. (a) Wings broader, not appearing as if stalked, the axillary lobe longer, much broader, more normally rounded posteriorly and the anal cell shorter, much broader; upper branch of cubital fork usually without a distinct appendix basally; first posterior cell more sub-spindle-shaped, more narrowed apically; mesopleural tuft entirely pale and thorax and scutellum above and sides of tergite 2 without intermixed black hairs and, if rarely with black hairs, wing-characters conform; transverse bands of pale or brassy scaling across hind margins of tergites narrower, even more so in ♂♂. . . . 51

- (b) Wings narrower, appearing as if stalked, due to a markedly narrow and shortish axillary lobe which is almost straight along its hind margin and a markedly narrow and long anal cell; base of upper branch of cubital fork with a distinct appendix; first posterior cell not sub-spindle-shaped, but sub-parallel-sided and more broadly open; mesopleural tuft, thorax and scutellum above with intermixed black hairs and hairs on lower part of sides of tergite 2, those densely intermixed on sides of 3-7 (or 8) and prealar, postalar and scutellar bristles black; transverse bands of pale or brassy scaling across hind margins of tergites, even in ♂, broader. ♂ *pedunculata* n. sp. (p. 258)
51. (a) Hair on body above gleaming distinctly deeper yellowish to deep golden; wings, apart from the slightly less darkly infuscated anterior half, more greyish or greyish translucent, the alula more reduced, its lobe narrower and smaller and axillary lobe more narrowed at base. 52
- (b) Hair above paler, predominantly more whitish, straw-coloured to creamy yellowish; wings with the infuscated anterior half appearing darker, the uninfuscated apical and hinder parts distinctly more hyaline, the alula broader, its lobe at base of axillary lobe distinctly broader, more rounded and more developed and the axillary lobe also broader, more rounded at base. 54
52. (a) Head with more black hairs in front and down sides of frons and with much denser black hairs on antennae below; three or four prealar bristles black; palps subequal to or shorter than, or not much longer than, antennal joint 3; wings with the alular lobe distinctly less developed, the first posterior cell more narrowed apically, the anterior infuscated part of wings darker brownish, the base of first submarginal cell and to a certain extent second basal cell infused like rest of anterior part; interocular space in front of ocellar tubercle in ♂ much narrower, only about as broad as front ocellus; smaller form, about 6½-10 mm. long. ♂ ♀ *oreophila* n. sp. (p. 251)
- (b) Head with more pale hairs on frons in front and on sides and with fewer or without any black hairs on antennae below; prealar bristles pale; palps distinctly longer than antennal joint 3; wings with the alular lobe distinctly more developed, the first posterior cell less narrowed apically, the anterior infuscated part of wings more yellowish brown, the base of first submarginal cell and second basal cell clearer and not so infused as marginal cell; interocular space in front of tubercle in ♂♂ much broader, broader than front ocellus; slightly larger forms, about 11-13½ mm. long. 53
53. (a) Hair on frons in front, on antennae below and on genae whitish, but with some black ones on antennae below; hair on pleurae and venter whitish, contrasting much with the yellow hair above; black hairs on sides of tergites 3-7 (or 8) distinctly denser, more tuft-like; infuscated anterior part of wings more brownish; veins darker brownish; junction of apical vein of discoidal cell with first posterior cell more or less opposite that of base of vein between submarginal cells; palps only about as long as antennal joint 3; tibiae tending to be paler, more yellowish or reddish brown. ♂ ♀ *salticola* n. sp. (p. 248)
- (b) Hair on frons in front and below antennae pale yellowish sericeous, without any black ones on antennae below; hair on body below scarcely paler than yellowish ones above; black hairs on sides of tergites 5-8 sparser; infuscated anterior part in wings paler yellowish brown; veins more yellowish; junction of apical vein of discoidal cell with first posterior cell lower down and not opposite that of base of vein between submarginal cells; palps longer, quite as long as antennae; tibiae not much paler than femora. ♂ *vicinalis* n. sp. (p. 249)
54. (a) Infuscated part in wings more extensive and more uniform, the base, costal cell, at least basal halves of marginal and first submarginal cells and entire first basal cell yellowish brownish to chocolate brownish, the second basal cell sometimes also showing some cloudiness; first posterior cell distinctly more markedly narrowed apically, sub-spindle-shaped and shorter or much shorter than discoidal cell; middle cross vein thus nearer apex of discoidal cell; proboscis without fine hairs below; interocular space in front of tubercle in ♂♂, though as broad as front ocellus, relatively wider or the narrow part much shorter and only subequal to length of tubercle. 55
- (b) Infuscation in wings appearing more broken up, only the base, costal cell, basal half of marginal cell and entire first basal cell brownish, the first submarginal cell in ♂

- entirely hyaline and second basal cell also clear and hyaline; first posterior cell less markedly narrowed apically, subequal in length to discoidal cell; middle cross vein thus farther away from apex of latter cell; proboscis with fine hairs below; interocular space in front of tubercle in ♂ very narrow, subcontiguous for a distance at least $1\frac{1}{2}$ times as long as tubercle. ♂ *stenometopa* n. sp. (p. 257)
55. (a) Antennal joint 3 more club-like, broadened basally and then rapidly narrowed apically, more so on lower side, its apical part very slender; labella of proboscis elongate, distinctly much longer than antennal joint 3; infuscation in wings more yellowish brownish; first posterior cell much broader, very much shorter than discoidal cell; axillary lobe slightly narrower, more regularly arcuate; hair on thorax and abdomen above, even if whitish, with much straw-coloured or yellowish ones as well and, if snow-whitish below and on pleurae, with some yellowish bristles on mesopleurae, otherwise more creamy below; interocular space in front of tubercle in ♂♂ a little broader than front ocellus; middle and hind femora with more spines below. 56
- (b) Antennal joint 3 distinctly more elongate-conical, tapering gradually apically, the apical part however still thick, not slender; labella markedly short, ovate, much shorter than antennal joint 3; infuscated part in wings slightly darker, more blackish brown; first posterior cell much narrower, only a little shorter than discoidal cell; axillary lobe distinctly broader, its hind margin more roundly curved; hair on body above more uniformly whitish and that below snow-whitish; interocular space in front of tubercle in ♂, at narrowest part, only about as broad as front ocellus; middle and hind femora with much fewer spines. ♂ ♀ *conicera* n. sp. (p. 255)
56. (a) Hair on antennae below without any tuft of dense black ones; that on thorax and scutellum above and on sides of abdomen, especially in apical half, more straw-coloured yellowish, sericeous yellowish to creamy, distinctly contrasting with the more whitish hair on pleurae, sides of abdomen basally and on venter; thorax without any intermixed black hairs or bristles in front or on sides or on scutellum; prealar and postalar bristles all yellowish; hair in metanotal tuft whitish; bristles in hinder part of mesopleural tuft pale like rest of hair in tuft; black hairs or tufts on sides of abdomen usually less conspicuous and sparse in some ♂♂; scaling across hind margins of tergites paler, more sericeous yellowish; infusion in wings usually slightly paler, more yellowish brownish, with a tendency for basal half of first submarginal cell to be slightly clearer than rest of dark part; basal joint of front tarsi in ♀ without very long, bristle-like spinules below. ♂ ♀ *conocephala* (Macq.) (p. 252)
- (b) Hair on antennae below with a very conspicuous and dense black tuft; that on thorax above, especially antero-laterally, and the pale ones on sides of abdomen much whiter, predominantly sericeous whitish, not contrasting much with the white hair on body below; thorax with distinct, conspicuous, intermixed, black hairs and bristles in front, antero-laterally, on sides and on scutellum; prealar, postalar and bristles in metanotal tuft black; bristles in hinder part of mesopleural tuft with distinct, intermixed, reddish or reddish golden ones and with reddish golden hairs on disc of thorax and scutellum and even with intermixed yellowish ones among the whitish ones on rest of thorax; black tufts on sides of tergites 2-7 (or 8) denser, more conspicuous; scaling across hind margins of tergites deeper golden or reddish golden, markedly contrasting with the whitish hair; infusion in wings (text-fig. 83) slightly darker, more coffee- or chocolate-brownish, the infuscated basal part of first submarginal cell more uniform with rest of infusion; basal joint of front tarsi in ♀ with distinct, longish, conspicuous, bristle-like spinules below. ♂ ♀ *septoptera* n. sp. (p. 254)
57. (a) Thorax and scutellum above with sparse or numerous, intermixed, black hairs or bristly hairs; prealar, postalar and scutellar bristles always black. 58
- (b) Thorax and scutellum above without any dark or black, intermixed, bristly hairs; prealar, postalar and scutellar bristles usually whitish or yellowish like rest of hair, rarely with the prealar ones black. 63
58. (a) Hair on the whole denser, that on pleurae, on mesopleuron, on sides of tergite 1 and on venter distinctly tinted more yellowish, sericeous yellowish to golden yellowish and that on body above also deeper yellowish; wings with the base, costal cell and basal

part or half of first basal cell in ♂♂ and the base, costal cell, base or basal half of marginal cell and entire, or greater part of, first basal cell in ♀♀ more distinctly infused with yellowish or brownish or even dark brownish. 59

- (b) Hair on the whole sparser, that on pleurae, mesopleuron, on sides of tergite 1 and on venter distinctly paler, gleaming more contrastingly whitish, that in mesopleural tuft in front of wing-bases and on sides of tergite 1 conspicuously whitish or pale in certain lights and that on body above, where pale, also tending to be paler, less golden yellowish; wings with only the base, costal cell and extreme base of first basal cell tinged slightly subopaquely yellowish whitish or yellowish in both sexes. 61

59. (a) Larger forms, about 7-8½ mm. long, with a wing-length of about 7½-9 mm.; wings relatively broader, more glassy hyaline, the membrane much smoother and with the microtrichial fringe along hind border less developed, less conspicuous; alula broader; first posterior cell broader, usually subequal to or even shorter than discoidal cell; anal cell normally open apically, but distinctly narrowed apically; middle cross vein nearer apex of discoidal cell; hair comparatively shorter, that on thorax above less shaggy and that on sides of abdomen also shorter in relation to body; sides of face and genae with more pale hairs; black hairs on sides of abdomen distinctly very much denser, more conspicuous and in form of a very dense blackish fringe on each side below the pale ones; pale hair on body above paler yellowish, sometimes becoming more whitish on sides of abdomen, that on pleurae and venter tending to be pale sericeous yellowish to even whitish on venter; antennal joint 3 more onion-shaped at base, its slender apical part thus longer. 60

- (b) Smaller form, about 4½-6 mm. long, with a wing-length of about 4½-6 mm.; wings relatively and markedly narrower, more distinctly greyish, the membrane distinctly crinkled or wrinkled in appearance and the microtrichial fringe along hind border more developed, more conspicuous; alula vestigial; first posterior cell narrow, elongate, visibly longer than discoidal cell; anal cell very broadly open and more or less equally broad throughout; middle cross vein farther from apex of discoidal cell; hair comparatively longer, distinctly more shaggy, that on thorax and especially on sides of abdomen distinctly longer and more shaggy in relation to body; sides of face, genae and antennae below with entirely or predominantly black hair; black hairs on sides of abdomen distinctly much sparser, less conspicuously tufty, not in form of a very dense, compact fringe below the pale hairs; pale hair on body above deeper yellowish, gleaming deeper golden to orange yellowish, that on pleurae and venter also deeper yellowish, scarcely paler than that on body above; antennal joint 3 more gradually narrowed apically from broad base, less onion-shaped at base, its slender apical part thus appearing shorter. ♂ ♀ *stenoptera* n. sp. (p. 259)

60. (a) Patch of silvery whitish hair on frons in front less extensive, the black ones on basal part of frons also extending on each side anteriorly to level of antennae, thus enclosing white patch; hairs on outer lower aspect of antennal joint 1 whitish and those along sides of genae entirely or predominantly blackish; thorax and scutellum above with distinctly sparser and fewer intermixed black hairs; pale hair on abdomen above tending to be paler, more straw-coloured; black hair on sides of tergites 2-7 (or 8) very dense, compact and conspicuous throughout; pale hair on venter more whitish; bands of deep golden, hair-like scaling across hind margins of tergites very narrow, confined to hind margins; discoidal cell more acute apically, its apical vein more subparallel to hind margin of wings; middle cross vein at a little less than apical fourth of discoidal cell; apical cross veins of basal cells with faint indications of infuscations.

♂ ♀ *thysanomela* n. sp. (p. 261)

- (b) Silvery patch on front part of frons larger, more extensive, due to the black hairs at base not extending anteriorly on each side to the same extent; hairs on lower outer aspect of antennal joint 1 yellowish or yellowish brown and those along sides of genae predominantly yellowish; thorax and scutellum above with more numerous, denser, more conspicuous, intermixed, black hairs; pale hair on abdomen above more sericeous yellowish or yellowish; black hair on sides of tergites apparently less dense, less conspicuous and also sparser on sides of 2 and 3; pale hair on venter tinted more

yellowish; bands of deep reddish golden hair-like scaling broader, occupying at least apical halves of tergites; discoidal cell distinctly more truncate apically, its apical vein more oblique to hind border; middle cross vein at much less than apical fourth of discoidal cell; apical cross veins of basal cells without any indications of even faint spot-like infuscations. ♂ *desmophora* n. sp. (p. 262)

61. (a) Femora paler brownish and tibiae even tending to be conspicuously yellowish; silvery whitish patch on frons in front more extensive, more conspicuous; inner lower aspect of antennal joint 1 with fewer, intermixed, black hairs; hair on sides of face and down genae entirely very pale, sericeous whitish to silvery whitish; that in mesopleural tuft and on sides of tergite 1 more conspicuously whitish or sericeous whitish; thorax above with comparatively fewer, intermixed, black hairs; axillary lobe and alula relatively broader, more developed, the base of wings thus apparently broader; veins more yellowish brownish to brown. ♂ ♀ *latiuscula* Lw. (p. 263)
- (b) Femora very dark brownish or blackish brown and tibiae, if slightly paler, also darker, not pale yellowish brownish; whitish or pale patch on frons in front less conspicuous; inner lower aspect of antennal joint 1 with predominantly or entirely black hair; hair on sides of face and down genae with more numerous dark ones, sometimes even entirely dark and, if with pale ones, these are more yellowish; hair on pleurae and sides of tergite 1, though also whitish, less conspicuously evident as whitish tufts; thorax above with distinctly more numerous black hairs; axillary lobe and also alula distinctly narrower, more reduced, the base of wings thus apparently narrower; veins darker, more blackish brown. 62
62. (a) Pale hairs on frons in front gleaming more sericeous yellowish or straw-coloured yellowish, distinctly less extensive, occupying only extreme front part; hair on sides of face and down genae predominantly pale, sericeous yellowish; bristly hairs on thorax above comparatively sparser, predominantly blackish; erect bristly hairs on tergites 4-8 above predominantly black; hair on pleurae, sides of tergite 1 and on sides of venter below gleaming more sericeous yellowish than whitish; transverse bands of scaling on abdomen above more conspicuous, gleaming deep golden yellowish; antennal joint 3 golf-driver-club-shaped at base, more rapidly broadened basally below; alula and axillary lobe very much reduced, the apical lobe of former at base of latter wanting and the axillary lobe very narrow, much reduced, almost equally broad throughout; interocular space in ♂, at narrowest part in front of ocellar tubercle, broader, nearly as broad as tubercle or broader than length of antennal joint 2. ♂ *berzeliaphila* n. sp. (p. 264)
- (b) Pale hairs on frons in front gleaming more silvery or sericeous whitish, distinctly more extensive, occupying at least front half of frons; hair on sides of face and down genae predominantly or entirely black; bristly hairs on thorax denser, composed of intermixed black ones and more numerous sericeous yellowish ones; erect hairs on abdomen discally above predominantly pale, gleaming sericeous whitish to sericeous yellowish, a few dark ones being present only on last tergite above; hair on pleurae, sides of tergite 1 and sides of venter below gleaming more whitish than yellowish; transverse bands of scaling across tergites less conspicuous, gleaming paler sericeous yellowish; antennal joint 3 more gradually broadened basally below, not golf-driver-club-shaped at base; alula and axillary lobe more developed, the apical lobe of former small but distinct and the latter very much broader, distinctly more arcuately lobe-like; interocular space in ♂, at narrowest part, much narrower than tubercle, only a little broader than front ocellus or subequal to length of antennal joint 2. ♂ *hylesina* n. sp. (p. 265)
63. (a) Hair above predominantly more straw-coloured yellowish, sericeous yellowish to golden yellowish, that below rarely whitish and that across extreme anterior margin of thorax in collar not very dark or black; wings with the base, alula, entire costal cell and basal part, or sometimes entire, first basal cell in ♂♂ and in addition the greater part or entire first basal cell and sometimes even base or basal halves of marginal and first submarginal cells in ♀♀ tinged subopaquely yellowish, yellowish brownish to even dark brownish; spicules on tibiae distinctly more strongly developed; basal joint

of front tarsi in most of the known ♀♀ with distinct, longish, bristle-like spicules below; slightly larger forms, about 6–12 mm. long, with a wing-length of about 6–11½ mm.

64

- (b) Hair above and below predominantly or entirely snow-whitish or gleaming sericeous whitish and that across extreme front part of collar sometimes black or dark in ♂♂ and in some ♀♀; wings with the base, alula, basal part of costal cell up to cross vein and part of costal cell posterior to false vein in ♂♂ and in addition entire costal cell and sometimes also anterior basal part of first basal cell in ♀♀ subopaquely whitish, yellowish whitish to pale yellowish, rarely with the entire costal cell tinged in ♂♂ and, if so, black or dark collar hairs are present; spicules on tibiae less strongly developed; basal joint of front tarsi in known ♀♀ without any, or with much shorter, bristly spicules below; mostly small species, usually about 5–7½ mm. long, with a wing-length of about 5½–8 mm.

74

64. (a) Hair above and below predominantly deep golden yellowish, that on sides of abdomen even sometimes tinted orange golden, that on anterior half of frons, on antennae above and below, on face and genae also gleaming entirely deep sericeous yellowish to deep golden; antennae without any black hairs; abdomen with inconspicuous dark or blackish brown hairs only on sides of tergites 4–8 in ♂ and absent or only present on last tergite in ♀; scaling on abdomen above entirely golden yellowish and even that not concentrated in bands across hind margins of tergites golden; scaling on legs yellowish or dull ochreous yellowish.

♂ ♀ *flavifrons* n. sp. (p. 266)

- (b) Hair either not predominantly or entirely golden yellowish and, if gleaming deep golden yellowish, that on front part of frons gleaming more sericeous or silvery whitish; antennae with black hairs either above or below; abdomen usually with more conspicuous, denser and more extensive black hairs on sides, usually present on at least sides of tergites 2–7 (or 8); scaling on abdomen above always with some fine, dark or black scales intermixed with the pale ones or those discally between the concentrated pale bands on tergites black; scaling on legs usually more whitish, greyish whitish or greyish yellowish and less conspicuously yellowish.

65

65. (a) Wings normally broad; first posterior cell less narrow, longer, subequal in length to, or shorter than, discoidal cell; anal cell usually broader at middle; axillary lobe broader, less reduced, more arcuately rounded; alula less reduced, its lobe at base of axillary lobe small, but distinct; tuft of silvery or sericeous whitish hair on frons anteriorly broader, longer, more extensive, the black hairs on its sides in ♂♂ less extensive, not much longer than white ones; hairs on antennae below and on sides of face either predominantly pale or, if sometimes predominantly black, still with much or more numerous pale ones.

66

- (b) Wings rather narrowish, first posterior cell long and narrow, much longer than discoidal cell; anal cell almost equally broad throughout; axillary lobe much reduced and narrow; alula very much reduced; silvery tuft on frons anteriorly markedly short, much less extensive, in form of a small circumscribed tuft, the blackish hairs on sides of frons in ♂ longer than silvery ones; hairs on antennae above and below, on sides of face and genae predominantly black, only a few pale ones being present.

♂ *jansei* n. sp. (p. 277)

66. (a) Hair on body above deep golden yellowish, reddish fulvous to deep orange fulvous in different lights, that on antennae below, on face, body below (except basally on venter) and on squamae scarcely paler, also deep yellowish or golden; antennae without any black hairs below; black hairs on sides of abdomen distinctly fewer, less dense and inconspicuous; scaling across hind margins of tergites deeper golden yellowish; axillary lobe rather broadish, much broader than anal cell, its hind margin more strongly curved.

♂ ♀ *simplex* (Wied.) (p. 280)

- (b) Hair on body above much paler to very much paler yellowish or golden to even straw-coloured yellowish or even more whitish, the pale ones on antennae below, on face, body below and squamal fringe distinctly paler, more whitish, sericeous or yellowish white or white; antennae usually with a few, numerous or even dense black hairs below and, if without any black ones, hair on body below more whitish and that above

not deep fulvous or golden; black hairs on sides of abdomen, even if confined posteriorly, more numerous, denser and more conspicuous; scaling on abdomen above paler, more brassy or whitish; axillary lobe tending to be relatively narrower, its hind margin more regularly curved. 67

67. (a) Hair on body above predominantly sericeous whitish or straw-coloured, that on antennae below, face and body below snow-whitish or white; wings, even in ♂, with the entire first basal cell and even extreme base of first posterior cell and at least basal half of marginal cell brownish like costal cell and base; apical cross veins of basal cells with distinct spot-like infusions; alula distinctly more developed, broader, more lobe-like; proboscis with some fine hairs below; middle femora with relatively denser white hairs below; interocular space in ♂ in front of ocellar tubercle very narrow, subcontiguous, or only as broad as narrow front ocellus, this narrow part markedly long, quite $1\frac{1}{2}$ times length of narrow tubercle. ♂ *stenometopa* n. sp. (p. 257)
- (b) Hair on body above less whitish, distinctly more yellowish, sericeous yellowish to pale yellowish or even lemon yellowish, that on body below either slightly paler than above or, if white, the white contrasts with that on body above and that on antennae below sometimes more sericeous yellowish or with black ones; wings in ♂♂ less infuscated, the apical part or half of first basal cell not infuscated and infuscation at base of marginal cell less distinct; apical cross veins without any or with fainter and less distinct spot-like infusions; alula distinctly more reduced, narrower; proboscis without distinct fine hairs below; middle femora with sparser whitish hairs below; interocular space in ♂♂ usually distinctly or much broader than front ocellus and, if appearing narrow, the narrow part is much shorter, only subequal in length to ocellar tubercle. 68
68. (a) First posterior cell distinctly shorter, markedly shorter than discoidal cell, also much shorter than fourth posterior cell, more sub-spindle-shaped, distinctly more narrowed apically and there considerably narrower than apex of third posterior cell (scarcely or even less than half of latter); apical cross vein of discoidal cell distinctly longer, more distinctly sinuous; apical margin of second posterior cell only a little more than $1\frac{1}{2}$ times length of base of this cell; pale hairs on frons in front, on antennae below and on sides of face distinctly more sericeous yellowish or yellowish, either without any or with fewer or with a smaller tuft of black hairs on antennae below; hair on body above on the whole more lemon or greenish yellow; slightly larger species, about 10–11½ mm. long, with a wing-length of about 10–11½ mm. ♂ ♀ *citiraria* Hesse (p. 282)
- (b) First posterior cell distinctly longer, only a little or not very markedly shorter than discoidal cell, subequal in length or only a little shorter than fourth posterior cell, distinctly less narrowed apically, sometimes tending to be sub-parallel-sided, its apex only a little narrower than apex of third posterior cell (not less, usually more or much more than half apical part of latter); apical cross vein of discoidal cell usually shorter, straight or straighter and, if long and sinuous, other characters at least conform; apical margin of second posterior cell usually much more than $1\frac{1}{2}$ times length of its base; pale hairs on frons, antennae below and sides of face usually strikingly white or sericeous whitish and usually with more or a denser tuft of black hairs on antennae below; hair on body above either more sericeous yellowish, straw-coloured yellowish or deeper yellowish to golden yellowish; usually slightly smaller forms, usually less than 10 mm. long, with a wing-length of less than 11 mm. 69
69. (a) Palps markedly long, much longer than antennal joints 2 and 3 combined, at least 1 mm. long; proboscis with conspicuous hair-like spinules; interocular space in front of tubercle in ♂ slightly broader, a little broader than front part of ocellar tubercle, on vertex in ♀ a little more than 2 times width of tubercle; apex of discoidal cell more sharply acute, its apical vein longer, slightly more sinuous; hair on antennae below with fewer black hairs. ♂ ♀ *leucopsis* n. sp. (p. 283)
- (b) Palps distinctly much shorter, not longer than antennal joints 2 and 3 combined, less than 1 mm. long; proboscis without any or with only very fine and inconspicuous spinules below; interocular space in front of tubercle in ♂♂ slightly narrower, about as broad as or slightly narrower than front part of tubercle, on vertex in ♀♀ only about 2 times width of tubercle; apex of discoidal cell more obtuse or even subtruncate or

truncate and, if acute, other characters conform, its apical vein shorter and straight or straighter; hair on antennae below with more numerous or even dense black hairs in both sexes. 70

70. (a) Black hairs on antennae below usually denser, more conspicuous; hair on pleurae and body below scarcely or only slightly paler than that above; black hair on sides of abdomen, especially posteriorly, in form of more conspicuous and much denser tufts; wings tending to be more greyishly hyaline and in some ♀♀ with the base, alula, costal cell, basal parts of marginal and first submarginal cells to a variable extent and entire first basal cell more darkly or more extensively tinged; proboscis with distinctly visible spinules below; basal joint of front tarsi in ♀♀ with comparatively longer, more conspicuous, bristle-like spicules below, the longest of which are quite or nearly as long as second tarsal joint. 71

- (b) Black hair on antennae below less dense; hair on pleurae and body below slightly, but distinctly, paler, more whitish than that above; black hair on sides of abdomen distinctly less dense and much sparser; wings more vitreous or glassy hyaline, the base, alula, costal cell and anterior part, even in ♀♀, less darkly or intensely infused; proboscis with the spinules wanting or almost invisibly minute; basal joint of front tarsi in ♀♀ with comparatively shorter bristly spicules below, the longest ones being shorter than second tarsal joint. 72

71. (a) Two or three black prealar bristles present; bristly hairs on lower inner aspect of antennae predominantly or entirely black, the hairs on sides of antennae and face more whitish; sides of abdomen with relatively denser black hairs or tufts; wings tending to be more greyishly hyaline and anterior costal infusion, especially in ♀, darker, more conspicuous; first posterior cell tending to be less parallel-sided.

♂ ♀ *pulchriceps* Lw. and forms (p. 273)

- (b) All the prealar bristles pale like rest of hair above; hairs on lower inner aspect of antennae with more intermixed pale ones, those on sides of antennae below, on face and genae tinted slightly more pale sericeous yellowish or yellowish; sides of abdomen with relatively less dense black hairs or tufts; wings tending to be more glassy hyaline, the anterior infusion, even in ♀, less dark or conspicuous; first posterior cell tending to be more parallel-sided. ♂ ♀ *pulchriceps* var. *lingnau* n. (p. 276)

72. (a) Hair on sides of antennae below, face and genae gleaming sericeous whitish or silvery whitish like that on frons anteriorly; black hair on sides of abdomen denser, more conspicuous; proboscis longer, about 2.4–3 mm.; interocular space in front of ocellar tubercle in ♂ distinctly broader, very much broader than front ocellus, even slightly broader than length of antennal joint 2; alular lobe at base of axillary lobe very small, vestigial, narrower than apical parts of knobs of halteres; axillary lobe also narrower basally. ♂ ♀ *pulchriceps* var. *ogilviei* n. (p. 276)

- (b) Hair on sides of antennae below, sides of face and genae more sericeous yellowish to yellowish or at least distinctly tinted more yellowish than silvery patch on frons in front; black hair on sides of abdomen sparser, less conspicuous; proboscis shorter, about 1.8–2.4 mm.; interocular space in front of tubercle in ♂♂ distinctly narrower, only about as broad as, or a little broader than, front ocellus, narrower than length of antennal joint 2; alular lobe at base of axillary lobe distinct and quite as broad as apical part of knobs of halteres; axillary lobe itself also slightly broader basally. 73

73. (a) First basal cell in wings in ♂ only slightly yellowish at base and to a certain extent also the costal cell yellowish; first posterior cell rather broadish apically, not markedly narrowed; proboscis slightly stouter and shorter; interocular space in front of ocellar tubercle in ♂ distinctly narrower than length of antennal joint 2; pale hair on frons in front gleaming distinctly more silvery whitish; antennae with fewer or without any black hairs below; sides of abdomen with apparently fewer and sparser black hairs.

♂ ♀ *oreoica* n. sp. (p. 278)

- (b) First basal cell in ♂ entirely subopaquely yellowish like the base and costal cell; first posterior cell more distinctly and more markedly narrowed apically; proboscis slightly more slender and longer; interocular space in front of tubercle in ♂ slightly broader,

subequal to length of antennal joint 2; pale hair on frons gleaming slightly more sericeous yellowish; antennae with more numerous black hairs below; sides of abdomen with distinctly more numerous black hairs.

♂ var. of *oreoica* n. sp. (p. 280)

74. (a) Hair on greater part of frons, antennae below (sometimes also above), sides of face and genae entirely sericeous whitish; black hairs on sides of abdomen reduced, either entirely absent or present only on tergites 5-7 (or 8) or on last tergite; collar without any distinct dark hairs. 75
- (b) Hair on basal half and sides of frons, on antennae above and either densely on antennae below (or in form of conspicuous intermixed ones below) black; black hairs on sides of abdomen distinct, numerous or in tufts on sides of tergites 2-7 (or 8) or 4-7 (or 8); collar with distinct dark or black hairs in some ♀♀. 78
75. (a) Antennal joint 3 distinctly more rapidly broadened and bulging basally below, more golf-driver-club-shaped at base; frons, especially in ♀♀, distinctly and normally depressed anteriorly; interocular space on vertex in ♀♀ only about, or slightly less than, twice distance between outer margins of hind ocelli; axillary lobe broader, markedly obtusely rounded; abdomen either with more numerous black hairs on last tergite or with black ones also on sides of tergites 5-7 (or 8); tibiae darker, scarcely or not much paler than femora; basal joint of front tarsi in ♀♀ without any longish, bristly spicules below. 76
- (b) Antennal joint 3 distinctly more gradually broadened basally below, less bulging, more bulb-shaped and slender part stouter; frons in ♀♀ scarcely or only shallowly depressed anteriorly; interocular space on vertex in ♀♀ broader, slightly more than twice, or quite $2\frac{1}{2}$ times, width of tubercle; axillary lobe narrower, not so obtusely rounded; abdomen without any or with much fewer black hairs and only on last tergite; tibiae tending to be paler than femora; basal joint of front tarsi in ♀♀ with a few, longish, bristle-like spicules below. 77
76. (a) Interocular space in front of ocellar tubercle in ♂ narrower, as broad as small front ocellus; space on vertex in ♀ also narrower, scarcely twice width of tubercle; proboscis more slender, relatively longer; hairs on antennae above pale; prealar bristles pale; black hairs on abdomen confined to last tergite and hairs on sides of tergites mostly whitish; first posterior cell relatively narrower, more narrowed in ♂ at least, longer than discoidal cell; second posterior cell broader apically, much broader than third.
♂ ♀ *albata* Hesse (p. 268)
- (b) Interocular space in ♂ broader, at least $1\frac{1}{2}$ -2 times width of front ocellus; space on vertex in ♀ broader, a little more than twice width of tubercle; proboscis stouter, relatively shorter; hairs on antennae above black; prealar bristles black; black hairs on abdomen also present on sides of tergites 5-7 (or 8) and hairs on sides of tergites 2-4 in ♂ yellowish; first posterior cell relatively broader and subequal in length to discoidal cell; second posterior cell narrower apically, only a little broader or as broad as third.
♂ ♀ *mozambica* n. sp. (p. 269)
77. (a) Hair on head and body gleaming more snow-whitish or silvery whitish; prealar, postalar and scutellar bristles more whitish; last tergite without any distinct black hairs; frons at broadest part, just above level of antennae, comparatively narrower, only about twice as broad as length of antennal joint 3, the hairs on it anteriorly longer and denser; tibiae slightly darker, more brownish; slightly smaller form, about 6 mm. long, with a wing-length of about 7 mm. ♀ *leucochlaena* n. sp. (p. 270)
- (b) Hair on thorax antero-laterally and on sides of abdomen gleaming more straw-coloured; prealar, postalar and scutellar bristles more pale sericeous yellowish; last tergite with some distinct black hairs; frons at broadest part, just above level of antennae, relatively broader, quite $2\frac{1}{2}$ times as broad as length of antennal joint 3 and hairs on frons anteriorly apparently shorter and sparser; tibiae slightly paler, more yellowish; slightly larger form, about $7\frac{1}{2}$ mm. long, with a wing-length of about 8 mm. ♀ var. of *leucochlaena* n. sp. (p. 270)
78. (a) Antennal joint 3 more golf-driver-club-shaped at base, its lower basal part more produced or bulging; frons not distinctly impressed anteriorly; labellar lobes of

proboscis very short, ovoid and broad; white hair on sides of abdomen dense, hiding the shorter and denser, black, bristly hairs on sides of tergites 2-7 (or 8); basal joint of front tarsi in ♀ with very fine, dense and short, brush-like spicules below.

♂ ♀ *albulata* n. sp. (p. 271)

- (b) Antennal joint 3 more bulb-shaped at base, its base below less produced or bulging; frons shallowly depressed anteriorly; labellar lobe slightly longer, slightly less ovoid, more pointed apically; white hair on sides of abdomen more shaggy, not hiding the equally long black hairs on sides of tergites 4-7 (or 8); basal joint of front tarsi in known ♀♀ with the spicules below not very fine and dense like a brush. 79

79. (a) Interocular space in front of ocellar tubercle in ♂ very narrow, only about as broad as front ocellus; frons more distinctly depressed anteriorly; antennal joint 3 less rapidly bulb-like basally; antennae below with more intermixed white hairs in ♂ and entirely white-haired in ♀; wings with only the base, alula and basal part of costal cell opaquely whitish to pale yellowish whitish; first posterior cell not, or scarcely, narrowed apically; discoidal cell more subtruncate to truncate apically; tibiae with the spicules less strongly developed. ♂ ♀ *canescens* n. sp. (p. 272)

- (b) Interocular space in front of tubercle in ♂ distinctly slightly broader than front ocellus, quite as broad as length of antennal joint 2; frons in ♂ at least more feebly depressed anteriorly; antennal joint 3 tending to be more rapidly bulb-like basally; antennae below entirely or with more numerous and denser black hairs in ♂ at least; wings with the base, alula, entire costal cell and even along anterior basal part of first basal cell opaquely yellowish; first posterior cell slightly, but distinctly, more narrowed apically; discoidal cell distinctly more acute and pointed apically; tibiae, especially hind ones, with more strongly developed spicules. ♂ *bembesiana* n. sp. (p. 273)

80. (a) Wings much more extensively and more darkly infuscated, the infusion either like that of *Anthrax*, in form of a dark, smoky brownish, blackish brown or coffee-brownish infusion, occupying anterior costal half and with large, conspicuous, rounded, often coalescent, spots or infusions on cross veins and at bases of other veins, or in form of an infusion occupying base, alula, costal cell, basal parts or more than basal halves of marginal and first submarginal cells, greater part or entire first basal cell and sometimes also second basal cell and discoidal cells, intensified on cross veins by distinct, though smaller, spot-like infusions; knobs of halteres usually more pale yellowish brownish; pale hair on sides of tergites 1-2, or 1-3, or 1-4, even if whitish, not in form of a characteristic, conspicuous, dense, silvery white patch or tuft conspicuously contrasting with dark tufts on rest of tergites; hair in ♀♀ usually not differing much from that of ♂♂. 81

- (b) Wings predominantly vitreous or glassy hyaline or rarely faintly greyish hyaline, usually with only the base, alula, basal part of costal cell and base or anterior basal part of first basal cell in ♂♂ and in addition the entire costal cell and sometimes almost entire first basal cell in some ♀♀ subopaquely whitish, yellowish whitish, yellowish to brownish, rarely with the infusion occupying bases of marginal and first submarginal cells, without any indication of distinct, spot-like infusions on cross veins; knobs of halteres very dark above; hair on sides of abdomen usually with a very characteristic, dense, conspicuous patch or tuft of gleaming or silvery white hair on sides of either tergites 1-2, or 1-3, or 1-4, or even on entire sides of abdomen in some ♂♂ which contrasts conspicuously with the blackish brown or black tufts on sides of remaining tergites; hair in ♀♀ more frequently differing from that of ♂♂ in being sparser on body above, shorter on sides of abdomen and in being differently coloured, usually whitish on pleurae. 86 (♂♂), 105 (♀♀)

81. (a) Wings (text-figs. 49 and 51) with an extensive smoky brownish to chocolate-brownish infuscation in form of a more or less uniform infusion in anterior costal half and large rounded spots or infusions on cross veins and other veins, some of these spots either coalescing with the anterior infuscation, or the latter extends band-like across wings to include some of these spots; first posterior cell distinctly narrowed apically, spindle-shaped, either subequal in length to, or shorter than, discoidal cell; antennal joint 3 more gradually broadened basally below, more club-shaped or leek-shaped at base, the

- lower basal part not produced or prominently bulging; black hairs or tufts present on sides of tergites 2-7 (or 8); legs predominantly or entirely pale yellowish red. 82
- (b) Wings with the smoky brownish or blackish brown infuscation in form of an infusion in anterior half, occupying base, alula, costal cell, more than basal halves of marginal and first submarginal cells, entire first basal cell and sometimes also second basal and discoidal cells, the rest of wings being greyish hyaline and the anterior darker part usually merging into less-tinged parts and emphasized along cross veins and bases of other veins as much smaller, spot-like infuscations; first posterior cell not, or scarcely, narrowed apically, more parallel- or sub-parallel-sided, distinctly longer than discoidal cell; antennal joint 3 more rapidly broadened basally below, more golf-driver-club-shaped at base, the lower basal part produced or prominently bulging; black hairs or tufts present only on sides of tergites 4 or 5-7 (or 8); legs predominantly dark and, if tibiae are paler than femora, they are not yellowish reddish. 83
82. (a) Wings (text-fig. 49) infuscated and spotted like those of *Anthrax*, the base, alula, costal cell, greater part of marginal cell, basal half of first submarginal cell, entire first basal cell, greater part of second basal cell and to a lesser extent anal and axillary cells being dark blackish brown and with large, conspicuous and rounded spots or infusions on cross veins, at bases of veins between submarginal cells, between discoidal and third posterior cells and at apex of anal cell, these spots being confluent with the anterior infusion or with each other to a variable extent; first posterior cell shorter than discoidal cell; antennae with black hairs above and with some or numerous intermixed black ones below; thorax with numerous dark or black hairs intermixed above and with the prealar, postalar and scutellar bristles black; sides of abdomen with more extensive black hair; scaling above deep brownish or reddish golden; antennal joint 3 more club-shaped or leak-shaped at base; basal joint of front tarsi in ♀ with a few longish, bristly spicules below. ♂ ♀ *pterosticta* n. sp. (p. 199)
- (b) Wings (text-fig. 51) not spotted to the same extent, with a dull smoky brownish infusion, occupying anterior costal half and extending broadly band-like across wings from apex of costal cell to fourth posterior cell, leaving the second basal cell, bases of discoidal and fourth posterior cells, greater part of anal and axillary cells and apical part of wings hyaline, but with smaller, rounded spots on the cross veins and at bases of veins between submarginal cells and between discoidal and third posterior cells; first posterior cell tending to be subequal in length to discoidal cell; antennae with sericeous whitish hair above and below like rest of hair on head in front; thorax without any dark hairs above and with the prealar, postalar and scutellar bristles whitish; sides of abdomen with less extensive black hairs; pale scaling above more pale sericeous yellowish to whitish; antennal joint 3 more bulb-shaped at base and thus slightly broader; basal joint of front tarsi in ♀ without any longish, bristly spicules below. ♀ *uniplaga* n. sp. (p. 202)
83. (a) Wings with a very dark chocolate brownish or blackish brown infuscation in more than anterior half, extending to beyond end of costal cell and occupying also entire second basal and discoidal cells, this dark infusion more or less well marked off from clearer and less-tinged rest of wings, its hinder margin emphasized as distinct, darker, spot-like infusions on cross veins and bases of other veins; middle cross vein at about apical fifth of discoidal cell; hair on sides of thorax and antero-laterally in ♀ at least and the pale ones on sides of tergites 3 and 4 and at base of 7 tinted more distinctly yellowish; basal joint of front tarsi in ♀ with more numerous and more distinct, longish, bristly spicules below. ♀ *marleyi* n. sp. (p. 203)
- (b) Wings more diffusely infuscated, with the anterior half, comprising base, alula, costal cell, slightly more than basal halves of marginal and first submarginal cells and entire first basal cell tinged brownish in ♀♀, the second basal and discoidal cells less tinged than anterior part, this anterior infusion less contrasting with the less-tinged apical and hinder parts, with the spot-like infusions on cross veins and bases of other veins smaller and less conspicuous and with the infusion in wings of known ♂♂ fainter than in ♀♀; middle cross vein at distinctly more than apical fifth of discoidal cell; hair on thorax above and antero-laterally and on sides of abdomen more whitish or straw-coloured or even sericeous whitish in both sexes; basal joint of front tarsi in ♀♀ without any longish, bristly spicules below or with only a few apically below. 84

84. (a) Brownish infusion in anterior part of wings distinctly more diffuse, imperceptibly merging into less-tinged apical and hinder parts; second vein very much recurved and sinuous at end; antennal joint 3 slightly less rapidly broadened basally below, more bulb-shaped at base; hair on thorax antero-laterally more sericeous whitish and without any dark or black ones in collar in ♀. . . . ♀ *sinuosa* n. sp. (p. 205)
- (b) Brownish infusion in anterior part of wings, appearing more confined to base, alula, costal cell, more than basal halves of marginal and first submarginal cells and entire first basal cell, slightly less diffusely merging into less-tinged or greyish apical and hinder parts; second vein normally bent up at its end; antennal joint 3 distinctly more rapidly broadened basally below, more golf-driver-club-shaped; hair on thorax antero-laterally in ♀♀ tinted slightly more straw-coloured yellowish, but sericeous whitish in known ♂, and with some distinct, dark or black collar hairs in both sexes. 85
85. (a) Slender part of antennal joint 3 distinctly longer, quite 3 times length of broadened base; frons slightly more distinctly depressed anteriorly (interocular space in front of tubercle in ♂ very narrow, the inner margins of eyes subcontiguous for a distance slightly longer than tubercle); hair on sides of frons anteriorly with distinctly less dense and fewer black ones; antennae below without or with only a few black hairs; tergite 1 in ♀ with a few distinct black hairs across hind margin on each side submedially; golden yellowish scaling on abdomen above in ♀ more extensive, in broader bands; squamae dark; legs black; basal joint of front tarsi in ♀ with a few, longish, bristly spicules below. ♂ ♀ *lawrencei* n. sp. (p. 206)
- (b) Slender part of antennal joint 3 relatively shorter, less than 3 times length of broadened base; frons scarcely or not depressed anteriorly; hair on sides of frons anteriorly with distinctly denser and more numerous black ones; antennae below with more numerous black hairs; tergite 1 in ♀ without any visible black hairs across hind margin; yellowish scaling on abdomen above less extensive and sparser and in narrower bands; squamae dirty yellowish whitish; legs more sienna brownish or blackish brown; basal joint of front tarsi in ♀ without any longish, bristly spicules below. ♀ *natalicola* n. sp. (p. 208)
86. (a) Antennal joint 3 more gradually broadened basally below, more leek-shaped at base, the lower basal part not prominently produced or bulging; hair on abdomen entirely gleaming snow-whitish, only a few dark ones present on last tergite; hair in mesopleural tuft and on sides of thorax tinted orange yellowish; wings markedly narrowish, the cells relatively narrow and the surface of wing-membrane distinctly wrinkled or crinkly in appearance. . . . ♂ *kalaharica* n. sp. (Syn. = *mitis* Hesse, nec Lw.) (p. 285)
- (b) Antennal joint 3 more rapidly broadened basally below, more bulb-shaped or golf-driver-club-shaped at base, the lower basal part more produced or prominently bulging; hair on sides of abdomen not entirely snow-whitish, that on sides of either tergites 1-2, or 1-3, or 1-4 in form of a dense, conspicuous, white or silvery white patch, conspicuously contrasting with the dark blackish brown or black tufts on sides of remaining tergites; wings normally broad, the cells also normally broad and the surface of the membrane less wrinkled in appearance. 87
87. (a) Sericeous or silvery white patch on sides of tergites uniform in colour, without any dark or black hairs being present on sides at base of tergite 1 or on sides or extreme sides of 2 and 3 and, if present on extreme sides below of latter two, all the white hair above more uniform and shaggy in appearance. 88
- (b) Sericeous or silvery white hair on sides of tergites not entirely or uniformly white, some distinct dark or black hairs being present on sides at base of tergite 1 or on sides or hind margins laterally of 2 or 3 and with the white patch or tuft on sides of 2 and 3 together sometimes distinctly denser, gleaming more silvery and appearing more decumbent and scale-like than rest of white hair on sides. 95
88. (a) Hair on frons, antennae above and below, genae, pleurae or lower parts of pleurae, on coxae and to a certain extent on sides of thorax above, or even on entire thorax above, predominantly very dark or black; that on head sometimes with a small tuft on sides of frons anteriorly just above antennae, a few intermixed hairs on lower aspect of

- antennal joint 1 and on sides of face or on sides of genae and sometimes a small tuft on inner aspect of antennal joint 1 gleaming silvery white. 89
- (b) Hair on all these sites not predominantly very dark or black, but with distinctly more, or with more extensive, pale hair on either one or other of these sites; that on head including distinctly more extensive or more numerous pale or gleaming whitish hairs and that on antennae below with more numerous, more conspicuous and more extensive silvery whitish hair. 91
89. (a) Hair on entire pleurae, antero-lateral and front half or greater part of thorax above entirely or predominantly black, there being no pale hair across front part of thorax above; hair on sides of face and upper part of genae with more intermixed whitish hairs; tuft on inner aspect of antennal joint 1 not very conspicuous as a silvery tuft; dark tufts on sides of tergites 4-8 appearing more black, not dark coffee-brownish; squamal fringe dark blackish brown; base of wings up to cross vein in costal cell and including alula darker, more brownish; veins tending to be more yellowish brown to brownish. ♂ *albicincta* n. sp. (p. 287) 91
- (b) Hair on at least sides of thorax above in front of wing-bases, or sometimes even greater part of mesopleural tuft not entirely black, but pale or straw-coloured and that across front part of thorax also pale or straw-coloured; hair on genae entirely or predominantly black; tuft on upper inner aspect of antennal joint 1 conspicuous as a smallish silvery white one and usually also with a few intermixed whitish hairs on lower outer aspect of the joint; dark tufts on sides of tergites 4-8 appearing more coffee-brownish in certain lights; squamal fringe conspicuously snow-white; only extreme base of wings blackish, the greater part of base and alula being more subopaquely yellowish; veins tending to be paler, more yellowish. 90
90. (a) Mesopleural tuft straw-coloured yellowish or whitish; hair on lower part of pleurae and on pectus dark blackish brown or black; that on sides of thorax above predominantly or entirely whitish or straw-coloured like that across front part just behind blackish collar hairs. ♂ *nigrescens* Ric. (p. 288) 90
- (b) Mesopleural tuft and hair on entire pleurae very dark purplish or blackish brown to black, there being no conspicuous and extensive pale hairs in mesopleural tuft, only the extreme upper part of the latter with straw-coloured hairs; hair on sides of thorax just above wings with distinct, intermixed, dark ones or even predominantly black and not so uniformly straw-coloured or whitish like that across front part of thorax. ♂ *nigrescens* var. *aterrima* n. (p. 290) 91
91. (a) Frons anteriorly relatively narrower, its foveate depression less broad and less deep and the hairs on each side of it encroaching on depression, not leaving a broadish, more or less bare, medial part. 92
- (b) Frons anteriorly distinctly broader, its foveate depression broader, deeper, more distinct and hairs on each side of it not encroaching on it, leaving a much broader medial part bare. 93
92. (a) Hair on greater part or entire frons sericeous whitish and relatively denser and that below antennae also entirely whitish or with only a few, intermixed, dark ones; hair in mesopleural tuft, sides of thorax in front of wings (excepting only black intermixed bristles) and most of sparse hairs on disc of thorax snow-white or sericeous whitish; hair on abdomen above sparser and pale and the white ones on sides basally confined to sides of tergites 1 and basal half of 2; pale scaling across hind margins of tergites, especially posteriorly, sparser, not conspicuous; squamal fringe white; antennal joint 3 distinctly less rapidly narrowed below from broad base, more ham-shaped. ♂ *arenaria* n. sp. (p. 297) 92
- (b) Hair on frons slightly less dense, that basally black and that below antennae mainly or predominantly black; hair in mesopleural and propleural tufts fulvous yellowish to pale orange brownish and much denser hairs on disc of thorax consisting of a mixture of black, greyish and yellowish brownish ones; hair on abdomen above denser and black and the silvery white ones on sides basally present on sides of tergites 1-3; pale scaling across hind margins of tergites denser, more conspicuous; squamal fringe blackish brown; antennal joint 3 very rapidly narrowed below from broad base, golf-driver-club-shaped. ♂ *plocamoleuca* n. sp. (p. 296) 93

93. (a) Dense and conspicuous silvery white hair on abdomen present on sides of tergites 1-4; hair on sides of frons and on antennae below with more black ones or mainly black; prosternal part with more black hairs; pale scaling on abdomen above and on venter sparser, less developed; proboscis projecting slightly more beyond buccal cavity, its labella much longer, more sharply pointed apically.
♂ nigrescens var. *bulawayoënsis* n. (p. 290)
- (b) Dense and conspicuous silvery white hair on abdomen present on sides of tergites 1-3 only; hair on sides of frons in anterior half and on antennae below entirely sericeous white; prosternal and propleural parts with fewer black hairs or entirely pale- or whitish-haired; pale scaling on abdomen, especially behind, denser, more conspicuous; proboscis only projecting a little beyond buccal cavity, its labella very much shorter, blunter apically. 94
94. (a) Hair on thorax above predominantly or entirely sericeous whitish or straw-coloured and without any black ones in collar or on propleural and prosternal parts; hair in mesopleural tuft whitish or pale sericeous, without any dark ones on coxae; dark tuft posteriorly on sides of abdomen more black, but with intermixed whitish hairs; squamal fringe white; apical part of second vein less recurved.
♂ compsocoma n. sp. (p. 292)
- (b) Hair on thorax above composed of a mixture of yellowish brownish, fulvous brownish and black or dark ones, with dark hairs in collar and on prosternal part; hair in mesopleural tuft fulvous brownish or golden brownish, intermixed with some dark ones and with dark hairs intermixed among brownish or fulvous ones on coxae, especially front ones; dark tufts posteriorly on sides of abdomen tinted dark coffee-brownish to chocolate-brownish; squamal fringe brownish; apical part of second vein more recurved. *♂ albizonata* n. sp. (p. 294)
95. (a) Hair on thorax composed of a mixture of yellowish brownish or fulvous brownish to golden brownish and black hairs above, brownish golden to fulvous ones in mesopleural tuft, on pleurae and coxae; frons anteriorly more shallowly depressed and with the hair occupying almost entire or most of the anterior part. 96
- (b) Hair on thorax either predominantly or entirely black above and below or black above and with much black hair on propleural and prosternal parts, or composed of intermixed white and black hairs above, sericeous whitish or straw-coloured yellowish ones in mesopleural tuft, on pleurae and coxae; frons anteriorly usually distinctly more deeply and foveately depressed, its hair sparser, narrowly confined to sides, the greater part of depression being bare and, if frons is not depressed and with denser hair, hair on thorax and pleurae entirely whitish or black, not fulvous brownish. 97
96. (a) Hair on greater part of frons, antennae above and below, sides of face and on genae gleaming entirely sericeous whitish; that on thorax, especially above, comparatively shorter and denser; sparse, fine, erect hairs on disc of abdomen black on tergite 1, predominantly sericeous whitish on 2 and 3 and part of 4 and black on 4-8; dark tufts on sides of tergites 4-8 tinted dark coffee to chocolate brownish; frons much broader anteriorly, very much broader than length of antennae; face less convex medially, less subconical from side; veins paler, yellowish or reddish brownish; legs paler, more sienna brownish or castaneous. *♂ albizonata* n. sp. (p. 294)
- (b) Hair on frons anteriorly, on inner and outer sides of antennae, on sides of face and on genae sericeous whitish, that on antennae above and in a dense tuft below black; that on thorax above slightly longer, sparser, and that in mesopleural tuft also slightly longer; fine, erect hairs on abdomen above black; dark tufts on sides of tergites 4-8 black; frons distinctly narrower anteriorly, scarcely broader than length of antennae; face distinctly more convex medially, thus more conically prominent from side; veins dark blackish brown or black; legs darker, black. *♂ plocamoleuca* n. sp. (p. 296)
97. (a) Hair on entire frons or greater part of frons, on antennae, entire or greater part of thorax above and even on entire scutellum predominantly or entirely very dark or black; hairs on all the coxae or at least front, or front and middle, ones mostly dark or blackish; squamal fringe pale or dark; transverse bands of pale scaling across hind margins of tergites either less developed, not so pale or narrower and not resolved into

- very conspicuous, spot-like patches on sides; frons either relatively very much broader anteriorly or with the anterior foveate depression comparatively deeper. . . . 98
- (b) Hair on frons anteriorly and on antennae below predominantly whitish or with more numerous silvery whitish ones; that on pleurae, mesopleuron, thorax and scutellum above predominantly sericeous whitish or yellowish even though intermixed hairs and the thoracic and scutellar bristles are blackish; hairs on coxae predominantly pale or with more intermixed pale ones; squamal fringe always entirely sericeous whitish or very pale sericeous yellowish; transverse bands of pale scaling across hind margins of tergites more developed, more conspicuous, usually resolved into more conspicuous, spot-like patches on sides; frons with the anterior depression shallower. . . . 102
98. (a) Hair on frons, antennae, face and genae, entire pleurae, greater part or entire thorax above and sometimes even entire scutellum predominantly or entirely very dark or black; hairs on all the coxae, or at least front and middle ones, predominantly dark or black; squamal fringe dark blackish brown or black; scaling across hind margins of tergites poorly developed, dark or, if pale or whitish, not conspicuous. . . . 99
- (b) Hair on sides of frons anteriorly, on sides of face and intermixed ones on antennae below sericeous whitish to pale yellowish, that in mesopleural tuft, on sternopleuron and metapleural tuft straw-coloured yellowish, pale yellowish or fulvous yellowish; hairs on middle and hind coxae predominantly or entirely pale or yellowish; squamal fringe whitish; scaling across hind margins of tergites more conspicuous, brassy or golden. . . . ♂ *fulvipleura* n. sp. (p. 301)
99. (a) White hair on sides of tergites 1-3 more uniform throughout, only a few more or less inconspicuous dark or black hairs being present on sides of tergite 1 basally below; some distinct intermixed whitish hairs present discally at base of thorax or on its sides basally or discally on scutellum; hair on sides of abdomen appearing longer, more shaggy; interocular space in front of ocellar tubercle, at narrowest part, relatively narrower, appearing narrower than front ocellus, the inner margins of eyes almost contiguous. . . . 100
- (b) White hair on sides of tergites 1-3 not uniformly white throughout, that on apical part of tergite 2 and that on basal part of 3 together forming a denser, more silvery whitish patch of decumbent hairs than the sparser white ones on tergite 1 and basal half of 2 which are flanked for the greater part below or on sides by numerous, dense and conspicuous black hairs, especially on sides of tergites 1 and 2; all the hairs on thorax and scutellum above entirely black; hair on sides of abdomen also tending to be shorter, denser, less shaggy; interocular space in front of tubercle relatively broader, either a little broader than front ocellus or, if appearing as broad, inner margins of eyes not subcontiguous. . . . 101
100. (a) Proboscis shorter, stumpy and stoutish, more or less confined to buccal cavity, its labellar lobes broad, well developed, resembling two cupped hands when opened, about as long as, or even slightly longer than, base of proboscis; face not convex medially, merely sloping down to buccal cavity; frons relatively much broader apically, about 1 mm. broad just above antennae or much broader than length of antennae, scarcely, or only very shallowly, depressed anteriorly; interocular space in front of tubercle narrower, the margins of eyes subcontiguous; antennal joint 3 more golf-driver-club-shaped at base; hair on antennae below entirely black; face with only a small, pale or whitish tuft on sides; erect hairs on abdomen above mainly whitish; hairs on coxae black; tibiae paler, more sienna brownish or reddish brown; discoidal cell more acute apically. . . . ♂ *melanthia* n. sp. (p. 194)
- (b) Proboscis relatively longer, more slender, projecting distinctly beyond buccal cavity, its labellar lobes shorter, narrower and much shorter than basal part of proboscis; face more convex medially, its apical part more subconically prominent from side, the buccal cavity ending sharply in it; frons much narrower across antennae, very much less than 1 mm. broad and subequal to length of antennae, deeply and foveately depressed anteriorly; interocular space, though narrow, slightly broader, as broad as front ocellus; antennal joint 3 tending to be more bulb-shaped at base, its base below less bulging; hair on antennae below with some distinct whitish ones on sides; face

and upper part of genae with white hairs on sides; erect hairs on abdomen above predominantly black in posterior half; hairs on hind coxae at least whitish; tibiae much darker, as dark as femora; discoidal cell more truncate or subtruncate apically.

♂ *albicincta* n. sp. (p. 287)

101. (a) Hair on sides of face with a distinct tuft of paler and more sericeous yellowish or straw-coloured yellowish ones; frons anteriorly with a slightly shallower foveate depression; interocular space in front of tubercle slightly broader than front ocellus or about as broad as front part of tubercle. ♂ *atrella* n. sp. (p. 299)
- (b) Hair on sides of face entirely black like rest of hair on head in front; frons anteriorly with the foveate depression distinctly deeper, more pronounced; interocular space in front of tubercle, at narrowest part, only about as broad as front ocellus.

♂ *eremia* n. sp. (p. 303)

102. (a) Proboscis short, stumpy, stoutish, tending to be confined to buccal cavity, its labellar lobes broadish, ovoid, resembling two cupped hands when opened, only a little shorter than stoutish base of proboscis; face not, or scarcely, convex medially, not subconically prominent apically; frons feebly, or scarcely, depressed anteriorly, its hair occupying most of anterior part; antennae without any or with fewer black hairs below; prosternal part without any black hairs, all the hairs being sericeous whitish like rest of hair on pleurae and coxae, though upper part of pleurae with only a few black ones; abdomen with sericeous whitish hair only on sides of tergites 1 and 2, that on 1 entirely whitish, but that on 2 with black ones as well; legs either predominantly yellowish or pale yellowish brown, or with at least tibiae and front femora yellowish; knobs of halteres tending to be pale yellowish brown above. ♂ *melanoloma* n. sp. (p. 196)
- (b) Proboscis longer, more slender and, if short, not stumpy or stoutish, usually projecting beyond buccal cavity, its labellar lobes narrower, more elongate, pointed apically, very much shorter than basal part of proboscis; face convex medially, more raised or subconical apically, sometimes appearing markedly conical; frons distinctly more deeply and more foveately depressed in front, its hairs more narrowly confined to its sides; antennae with more numerous or distinct black tufts below; prosternal part usually with intermixed black hairs and with more numerous black ones on sides of thorax; abdomen with sericeous white hair on sides of tergites 1-2 or 1-3 and always with some black ones also on sides at base of tergite 1; legs much darker and, if tibiae tend to be paler, they are more sienna brownish, not yellowish; knobs of halteres darker above. 103

103. (a) Palps much shorter, not as long as antennae; proboscis much shorter, only about or scarcely longer than 1 mm., not or scarcely projecting much beyond buccal cavity; white hair on sides of tergites 1-3 not uniform or equally dense throughout, that on apical part of tergite 2 and basal half of 3 together forming a denser patch, composed of somewhat decumbent, scale-like, brilliantly gleaming, silvery white elements, flanked anteriorly and below by conspicuous, black hairs and with the rest of the white hairs on sides of tergites 1 and 2 erect, sparser and less gleaming and those on 1 flanked anteriorly by black ones; pale hair on thorax more straw-coloured, tending to be more pale sericeous yellowish in mesopleural tuft and antero-laterally; hair on sides of abdomen, both white and black ones, comparatively shorter, less shaggy. 104
- (b) Palps much longer, slender, quite as long as antennae; proboscis distinctly longer, longer than 1 mm., projecting for quite a distance beyond buccal cavity; white hair only on sides of tergites 1 and 2, these equally dense and uniform throughout, with black ones apically on sides of tergite 2 and also some basally on sides of 1; pale hair on thorax more uniformly snow-whitish or sericeous whitish even in mesopleural tuft; hair on sides of abdomen distinctly longer, more shaggy in appearance.

♂ *cinereola* n. sp. (p. 304)

104. (a) Face in front distinctly more prominent, projecting more cone-like when viewed from side and also appearing smooth and somewhat tumid; antennal joint 3 (text-fig. 110) more markedly broadened basally, ham-shaped, more gradually narrowed apically, its slender part less slender; frons slightly more deeply depressed anteriorly; antennae usually with fewer or without any black hairs below; frons anteriorly with slightly more

- white hairs on sides; silvery white patch on sides of abdomen tending to be smaller, less extensive. ♂ *conostoma* n. sp. (p. 307)
- (b) Face in front distinctly not conically or tumidly prominent to the same extent, not so conically projecting; antennal joint 3 more bulb-shaped or golf-driver-club-shaped at base, thus more rapidly narrowed apically, its slender part longer; frons more shallowly depressed anteriorly; antennae with denser black hairs below; frons anteriorly with less conspicuous white hairs on sides; silvery white patch on sides of abdomen tending to be larger, more extensive. ♂ *namaqua* n. sp. (p. 306)
105. (a) Hair on thorax above, excepting only 1 or 2 black prealar bristles, without any inter-mixed black hairs in collar, discally or antero-laterally, all these hairs gleaming sericeous whitish like those in mesopleural tuft and on pleurae; postalar and scutellar bristles also pale. 106
- (b) Hair on thorax above, apart from black prealar bristles, mainly dark or with a transverse row of dark collar-hairs and distinct or even numerous, black, intermixed ones anteriorly, discally and especially antero-laterally and on sides and those in mesopleural tuft and on pleurae sericeous whitish, straw-coloured yellowish to creamy or even pale sericeous yellowish; postalar bristles sometimes also dark or black. 108
106. (a) Antennae with black hairs above and below; hair on body, especially the sericeous white ones on sides of tergites 1-3 or 1-4 comparatively shorter; frons comparatively narrower, a little less than 2 times distance between outer margins of posterior ocelli on vertex. 107
- (b) Antennae without any black hairs above and below, all sericeous whitish like those on frons anteriorly, face and genae; hair on body distinctly longer and white ones on sides of tergites 1-3 longer, more shaggy; frons comparatively broader, on vertex a little more than 2 times distance between outer margins of posterior ocelli. ♀ *compsocoma* n. sp. (p. 292)
107. (a) Antennal joint 3 more gradually broadened basally below, more leek-shaped at base, its lower basal part less bulging; wings distinctly narrower, more pointed, the cells relatively narrower, the alula and axillary lobe more reduced and the membrane more wrinkled and less iridescent; antennae with more numerous and denser black hairs below; only sides of tergites 1-3 with sericeous whitish hair. ♀ *kalaharica* n. sp. (p. 285)
- (b) Antennal joint 3 more rapidly broadened basally below, more golf-driver-club-shaped at base, its lower basal part more produced; wings normally broad, the cells also normal, the alula and axillary lobe normally reduced and the membrane less wrinkled, more iridescent; antennae with fewer or sparser black hairs below; sides of tergites 1-4 with sericeous whitish hair. ♀ *nigrescens* var. *bulawayoënsis* n. (p. 290)
108. (a) Proboscis very short, stumpy, stoutish, confined to buccal cavity or scarcely projecting, its labellar lobes broad, ovate or ovoid, subequal in length to, or only a little shorter than, stoutish basal part, resembling two cupped hands when opened; face not or scarcely convex medially, sloping down to buccal cavity and its apical part not subconically prominent. 109
- (b) Proboscis comparatively longer, more slender, usually projecting beyond buccal cavity, its labellar lobes narrower, less ovoid, always distinctly very much shorter than slender basal part even if they tend to be broadish or ovoid; face distinctly, even if only slightly, convex medially, its apex more distinctly raised and subconically prominent. 110
109. (a) Legs much paler, sometimes entirely pale yellowish brownish or yellowish reddish, sometimes with only the front and middle legs pale, but with the tibiae at least pale; antennae without any or with very few black hairs below; frons anteriorly with denser and more extensive whitish hair; sericeous whitish hair only on sides of tergite 1 and base of 2; hair on thorax above predominantly whitish and with fewer black ones on disc; pale scaling on body above more whitish; frons anteriorly narrower in relation to space on vertex, very much less than 2 times width of the latter; wings vitreous

- hyaline, the alula and axillary lobe less reduced, the latter arcuately rounded and shorter. ♀ *melanoloma* n. sp. (p. 196)
- (b) Legs dark, the tibiae also darker, dark reddish or castaneous brownish; antennae with dense tufts of black hairs below; frons anteriorly with the hair confined to sides and only those on extreme anterior part sericeous whitish; sericeous whitish hair on sides of tergites 1-3; hair on thorax above discally predominantly black; pale scaling on body above more sericeous yellowish or brassy yellowish; frons anteriorly comparatively very much broader in relation to vertex, broader than 2 times width of latter; wings faintly, but distinctly, tinged subopaquely greyish, the alula and axillary lobe more reduced, the latter elongate and narrow. ♀ *subcaliga* n. sp. (p. 198)
110. (a) Hair on sides of abdomen with sericeous white ones only on sides of tergite 1, or on 1 and part of 2; fine, erect hairs on disc of thorax, scutellum and abdomen above either entirely or predominantly black, or at least with more numerous black ones. 111
- (b) Hair on sides of abdomen with sericeous white ones on at least sides of tergites 1-3; fine, erect hairs on disc of thorax, scutellum and abdomen above predominantly whitish, especially on disc of thorax and scutellum. 119
111. (a) Wings with the base, alula, costal cell, base of marginal cell and sometimes to a lesser extent base of first submarginal cell and basal half or even entire first basal cell tinged yellowish brownish, brown to coffee-brownish. 112
- (b) Wings with only the base, alula, costal cell and either base or only anterior basal part of first basal cell tinged subopaquely yellowish to pale yellowish brownish, the infusion thus less extensive. 114
112. (a) Hair on antennae below entirely white and that on at least front half of frons also white; dark tufts on sides of abdomen slightly shorter, more coffee-brownish in certain lights; propleural and humeral tufts on the whole more yellowish to pale fulvous; first submarginal cell entirely hyaline; legs more castaneous or sienna brownish. ♀ *albizonata* n. sp. (p. 294)
- (b) Hair on antennae below with numerous or even dense black ones and only hairs on extreme front of frons on sides white like those on face; dark tufts on sides of abdomen longer and black; propleural and humeral tufts more whitish or paler yellowish; base of first submarginal cell also tinged yellowish brownish like base of marginal cell; legs darker, very dark blackish brown or black. 113
113. (a) Black hairs on frons extending farther down middle part to nearer antennae and the pale hair anteriorly on each side more snow-whitish; coxae sometimes with more intermixed dark hairs among whitish ones; black tufts on sides of abdomen without long whitish hairs below them on the extreme sides of venter or inflexed margins of tergites; scaling across hind margins of tergites sparser, forming smaller patches on sides; anterior infuscation in wings slightly darker, less diffuse; front tarsi without any long, hair-like spicules below. ♀ *arenaria* n. sp. (p. 297)
- (b) Black hairs on frons extending down to a little more than half-way and the pale hair anteriorly on each side tinted slightly more sericeous yellowish; coxae without any, or with fewer intermixed dark hairs; black tufts on sides of abdomen flanked below by long whitish hairs along extreme inflexed margins or on sides of venter; scaling across hind margins of tergites slightly more conspicuous, forming larger tufts or patches on sides; anterior infuscation in wings slightly paler, more yellowish brownish, more diffuse; front tarsi usually with a few longish, hair-like spicules below. ♀ *plocamoleuca* n. sp. (p. 296)
114. (a) Face in front markedly prominent, subtumid, distinctly projecting more cone-like; proboscis almost confined to buccal cavity or with only apices of labellar lobes projecting; antennal joint 3 more ham-shaped or leg-of-mutton-shaped at base, its lower basal part tending to bulge less. ♀ *conostoma* n. sp. (p. 307)
- (b) Face in front less markedly prominent, less tumid, more normally subconical; proboscis projecting distinctly beyond apex of buccal cavity for a longer distance, its entire labellar lobes usually beyond cavity; antennal joint 3 distinctly more golf-driver-club-shaped at base, more rapidly broadened below and its lower basal part more bulging. 115

115. (a) Hair on more than anterior half of frons, on antennae above and below, sides of face and genae sericeous whitish; hair on propleural and prosternal parts with a distinct sericeous yellowish tint; dark tufts on sides of abdomen tinted more brownish or coffee-brownish; hair on frons in front occupying almost entire depression; infusion in wings usually also present in basal half of first basal cell and even at extreme base of marginal cell; veins more yellowish brownish; legs more castaneous or deep sienna brownish. ♀ *albizonata* n. sp. (p. 294)
- (b) Hair on antennae above and numerous ones or a tuft below black; hair on propleural and sternopleural parts either whitish like rest of hair on pleurae or with intermixed black ones; dark tufts on sides of abdomen black and, if tinted brownish, hair on antennae below with intermixed black ones; hair on frons in front narrowly confined to sides; infusion in wings, if present in first basal cell, is confined more or less to anterior basal part; veins dark brownish or blackish brown; legs usually darker or with the tibiae dark reddish brownish. 116
116. (a) Proboscis longer, projecting much beyond buccal cavity, its labellar lobes relatively longer, almost as long as antennal joint 3; palps markedly long, nearly as long as antennae; infusion in first basal cell in wings occupying almost entire basal half of the cell; middle cross vein at a little less than apical fourth to apical fifth of discoidal cell; prosternal part and front coxae with silvery white hairs; abdomen with the dark tufts on sides tinted chocolate-brownish in certain lights and with more conspicuous whitish hairs and scales on sides of venter below dark tufts. ♀ *cinereola* n. sp. (p. 304)
- (b) Proboscis shorter, projecting less beyond buccal cavity, its labellar lobes also relatively shorter, much shorter than antennal joint 3; palps very much shorter, much shorter than antennae; infusion in first basal cell confined to its anterior basal part; middle cross vein at a little less than apical third, or even more than apical third, of discoidal cell; prosternal part and front coxae with a few, or even numerous, black, intermixed hairs; abdomen with the dark tufts on sides black and with fewer and less pale hairs or more yellowish scales on sides of venter below dark tufts. 117
117. (a) Hairs on prosternal and propleural parts mainly whitish, without any or with fewer dark ones; hairs on coxae entirely or mainly whitish or with only a few, intermixed, dark ones on front and middle ones; band of scaling across hind margin of tergite 1 more sericeous yellowish to golden in the middle; interocular space on vertex usually about twice distance between outer margins of posterior ocelli. 118
- (b) Hairs on prosternal and propleural parts mainly black or dark; hairs on coxae entirely or predominantly dark or black; scaling across hind margin of tergite 1 more whitish; interocular space on vertex usually a little more than twice distance between outer margins of posterior ocelli. ♀ *eremia* n. sp. (p. 303)
118. (a) Hairs on sides of entire tergites 1 and 2 white; sides of thorax in front of wings with more dark hairs; pale scaling on venter below sparser or fewer; axillary lobe slightly narrower, its hind margin more regularly curved; tibiae slightly paler, more piceous reddish. ♀ *atrella* n. sp. (p. 299)
- (b) Hairs on sides of tergite 1 and sides of base of 2 only white; sides of thorax with more pale scaling and whitish hairs or fewer dark ones; pale scaling on venter, especially sides, yellowish or fulvous and much denser; axillary lobe distinctly broader, its hind margin more sharply curved; tibiae darker or black. ♀ *fulvipleura* n. sp. (p. 301)
119. (a) Antennae below with more numerous black hairs and also white ones, the latter in form of a tuft on inner side and some on outer side; white hair on sides of frons anteriorly less extensive, more in form of a small tuft just above antennae; antennal joint 3 more rapidly broadened basally below, more golf-driver-club-shaped at base, its lower basal part more produced. 120
- (b) Antennae below entirely sericeous whitish-haired like frons anteriorly, face and genae; whitish hair on frons slightly more extensive on sides; antennal joint 3 more ham-shaped, more gradually broadened basally below, its slender part shorter and its base below less bulging. ♀ *consors* n. sp. (p. 291)

120. (a) Sides of thorax and antero-laterally with fewer, sparser, intermixed, black hairs and usually without black ones on each side of thorax above wings and on postalar calli.
♀ *nigrescens* Ric. (p. 288)
- (b) Sides of thorax antero-laterally, anteriorly, on sides above wings and even on postalar calli with distinctly more numerous and more conspicuous, black, intermixed hairs.
♀ *nigrescens* var. *aterrima* n. (p. 290)

GROUP I

Representatives of this group are characterized by a markedly short, thick, stumpy, plump and stoutish proboscis (cf. text-fig. 40, *b*) which is usually confined to the buccal cavity or scarcely projecting much beyond its apex and of which the labellar lobes are broad, well developed, ovoid or elliptical, appearing fleshy like those of Muscid-flies, not much or only a little shorter than, or sometimes even as long as, basal part of proboscis, resembling two cupped hands when opened and both these lobes and basal part of proboscis with conspicuous, fairly coarse and longish spinules.

SECTION I

Characterized by comparatively elongate and narrowish wings which are either entirely infuscated or extensively tinged brownish or blackish brown to a variable extent and of which the vein between the submarginal cells originates at, or almost at, right angles and at this bend is provided with a distinct or conspicuous basally directed appendix; antennal joint 3 long, almost rod-like, very gradually narrowed apically.

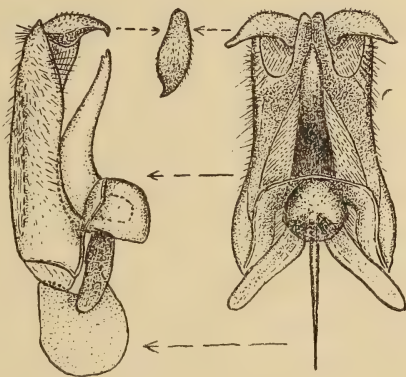
Lomatia acutangula Lw.

(Loew, p. 203 and tab. ii, fig. 10, *Dipt. Faun. Südafr.*, i, 1860; Bezzi, p. 113, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 142, *The Bombyliidae of the Ethiopian Region*, 1924.)

Body, including legs, predominantly black; hind margins of sternites narrowly pallid; tibiae sometimes tending to be blackish brown; body itself somewhat elongate; abdomen elongate, more or less parallel-sided, especially in ♂. *Vestiture* with the hairs predominantly black on ocellar tubercle, on base of frons and to a great extent also on frons anteriorly; short ones on antennal joints 1 and 2 above also black; some intermixed ones on frons anteriorly, fairly dense ones on sides of frons anteriorly, those on antennae below, those densely on sides of face and sparser ones on genae gleaming sericeous whitish; bristly hairs on thorax above, three or four prealar, the postalar and scutellar bristles, hairs on abdomen above, especially across hind margin of tergite 2 and discally on 3-7 (or 8), finer tuft-like ones on sides of tergites 4 (or 5)-7 (or 8) and those on sternites 7 and 8 in ♂ and on last sternite in ♀ black; hair on humeral part, on upper part of mesopleuron, in metanotal tuft, dense ones on sides of tergite 1, erect ones on disc of tergite 1, to a certain extent on disc of 2, bristly ones on sides of 2-3 (or 4) and intermixed ones on sides of 4 and 5 or even 6 gleaming

sericeous yellowish to yellowish; hair on pleurae, pectus and base of venter sericeous whitish to snow-whitish, contrasting with yellowish ones above; longish, sparse hairs on venter and dense ones on sides of venter also sericeous whitish; genital brush of ♀ dark, but gleaming velvety brownish; hairs on femora gleaming whitish; dense, fine, hair-like scaling on thorax and scutellum above and in distinct, broadish, transverse bands across hind margins of tergites, broader on sides, gleaming sericeous yellowish, brassy to golden yellowish, being denser on abdomen and more hair-like and tufty on sides of tergites 5-7 (or 8) and across hind margin of last tergite; scaling on venter predominantly sericeous or silvery whitish, denser along sides and across hind margins of sternites; scaling on rest of abdomen above black; flattened scaling on femora and outer hinder aspect of tibiae predominantly whitish or greyish white and that on apical parts of femora and on rest of tibial surfaces dark, gleaming greyish. *Wings* rather narrowish, comparatively elongate, with a yellowish brownish to pale chocolate brownish infusion, occupying base, costal cell, greater part of marginal and first submarginal cells, entire first basal cell, basal part of second submarginal cell, greater part of first posterior cell and along veins of second posterior cell and apical part of discoidal cell, this infusion tending to be more pronounced along veins and in ♂ it is well marked off preapically from a more greyish hyaline apical part; infuscated parts in ♀ appearing more diffused and extensive, but with apical part also more hyaline; greater part of second basal and discoidal cells, third and fourth posterior cells and anal and axillary cells in both sexes greyish hyaline like apical part though not appearing subopaquely whitish like apical part; veins mostly yellowish brownish, the first, third and fifth ones however yellowish; base of vein between submarginal cells bent at right angles to third and provided with a basally directed, short stump or appendix at the bend; discoidal cell elongate, much longer than first posterior cell; the latter distinctly narrowed apically; middle cross vein much beyond middle of discoidal cell; discoidal cell acute apically, its apical vein sinuous, more or less parallel to hind margin; axillary lobe narrow and alula much reduced; squamae opaquely whitish, its fringe whitish to pale yellowish whitish; knobs of halteres pale yellowish above. *Head* with the frons shining in both sexes, only slightly longitudinally impressed anteriorly; interocular space on vertex in ♂ about $1\frac{2}{3}$ times distance between outer margins of posterior ocelli or quite as broad as length of antennal joint 1; vertex in ♀ about or scarcely a little more than twice distance between outer margins of hind ocelli; antennae (text-fig. 40, *a*) comparatively long, joint 1 quite or a little more than 2 times as long as joint 2, joint 3 comparatively long, at least $1\frac{1}{2}$, sometimes nearly 2, times as long as 1 and 2 combined, slender, almost rod-like, only gradually broadened basally, not knob-like or bulging below as in most other species; proboscis (text-fig. 40, *b*) relatively short and stout, projecting only very slightly beyond buccal cavity, its labellar lobes broad, well developed, appearing broad and ovate, fleshy, resembling two cupped hands when opened, with both the base of proboscis and the labella covered with con-

spicuous, hair-like spinules; palps slender, quite as long as antennal joint 3. *Legs* with 1-3 small spines on front femora above in apical half; middle ones with 2-3 stoutish spines on lower anterior aspect more or less in apical half; hind ones with a row of about 3-8 spines on outer lower aspect and with about 8-14 irregularly disposed spines in apical part or half above and laterally, of which 2-5 are usually longer and with an irregular row of about 6-9 smaller and shorter spines on inner lower aspect; basal joint of front tarsi in ♀ without any longer, more bristle-like spicules below. *Hypopygium* of ♂ (text-fig. 42) reversed in position, its dorsal part being directed ventralwards and the last sternite being dorsal in position under the last tergite. This latter segment is slightly notched apically and has the inner part of the hind margin apically slightly produced basalwards in the form of a ledge or plate which is itself deeply incised and slit-like medially. The hypopygium itself with the outer apical angles of basal parts only slightly angularly prominent; beaked apical joints elongate-ovate (shown between side and ventral views), its apical beak directed downwards and slightly outwards, its dorsum slightly convex, covered with fine, sparse hairs and with its lower surface hollowed out; aedeagus shaped as shown in figures, not extending beyond inner apical angles of basal parts; basal strut shaped as shown in left-hand figure.



TEXT-FIG. 42. Side and ventral views of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia acutangula* Lw.

Length of body: about 9-12½ mm.

Length of wing: about 11½-15 mm.

Locality: Natal and Zululand.

Easily recognized by its narrowish, elongated and infuscated wings and by its rather longish, almost rod-like third antennal joints.

Lomatia acutangula var. *transvaalensis* n.

(Syn. = *infuscata* Bezzi, in part, p. 145, *The Bombyliidae of the Ethiopian Region*, 1924.)

Some specimens in the collections before me, though closely resembling *acutangula*, nevertheless constitute a very distinct variety which is characterized and distinguished from *acutangula* s. str. by the following characters:

Wings relatively very much longer, about 14-17 mm., darker, more extensively infuscated, without any clearer, greyish or more hyaline, apical part, the infuscation extending right to apex, being darker along the veins, but however

also with greater part of second basal and discoidal cells, third and fourth posterior cells and the anal and axillary cells clearer, more hyaline; veins on the whole darker; squamal fringe tinted more yellowish sericeous. *Vestiture* with the pale hair on sides of thorax, sides of tergite 1 and to a certain extent also on sides of 2-3 (or 4) gleaming paler, less yellowish, more straw-coloured yellowish; that on sides of frons anteriorly, sides of face, genae and on antennae below distinctly tinted more yellowish, more sericeous yellowish; that on disc of thorax above with distinctly denser and more numerous black bristly ones; hair on sides of abdomen with distinctly more extensive, denser, more numerous and more conspicuous, black ones on sides of tergites 2 (or 3)-8 in ♂ and 3 (or 4)-7 in ♀ and sometimes with sparser and fewer black ones on last sternite in ♀; fine hair-like scaling, apart from indications of narrow transverse bands, distinctly more uniformly dispersed on abdomen above and not so concentrated in broadish and conspicuous bands as in *acutangula*, these scales on abdomen also finer, gleaming more reddish golden on disc of thorax and on abdomen in ♀ and even in ♂ also deeper yellowish; black scaling on tergites also distinctly sparser, less dense; scaling on femora tinted more greyish yellowish. *Sternites* with slightly broader, more conspicuous, pallid, hind margins and venter tending to be more infused with brownish or yellowish brown.

From 6 ♂♂ and 4 ♀♀ (types in the Transvaal Museum).

Length of body: about 10-13 mm.

Length of wing: about 14-17 mm.

Locality: Transvaal: Pretoria (van Son, 8 Dec., 1932) (holotype); Pretoria (Wagner, 24 Nov. 1940) (allotype); Pretoria (Munro, 17 Dec. 1913 and 13 Dec. 1914); Krabbefontein (Breyer, Dec. 1902); Muckleneuk Hill (19 Dec. 1905); Natal: Candover Station (Marley, Oct. 1929). Zululand: Pongola River (Marley, Oct. 1929); Hluhluwe (Marley, 9 Nov. 1928).

According to the descriptive comments made by Bezzi under *infusata* (p. 145, loc. cit.), there is no doubt that the two ♀♀ from Pretoria in the British Museum to which he alludes belong to this variety and not to *infusata* Bezz. s. str. of which the type is in the South African Museum and which is an entirely different species. It is also probable that the two ♀♀ collected by Distant and referred to *acutangula* by Ricardo (p. 91, *Ann. Mag. Nat. Hist.* (7), vii, 1901) also belong to this variety.

Lomatia neavei Bezz.

(Bezzi, p. 143, *The Bombyliidae of the Ethiopian Region*, fig. 11, 1924.)

This species, which was described from a ♂ and ♀ from Mt. Mlanje in Nyasaland, is not represented in the collections before me, but it obviously belongs to the same section as *acutangula*. According to the description of Bezzi and the figure of the wing given, it appears to differ from the South African species chiefly in having the wings more uniformly and extensively infuscated,

the posterior basal areas and cells not being clearer or more hyaline than the anterior parts.

SECTION 2

Wings broader, less elongate, predominantly or entirely hyaline or with spots and infusions at least much reduced or confined anteriorly and basally, without any distinct or conspicuous appendix at base of vein between submarginal cells; knobs of halteres usually pale, rarely dark; antennal joint 3 not markedly long or rod-like, usually broadened or bulging to a variable extent basally below.

Lomatia dimidiata n. sp.

Body black; legs predominantly pale reddish yellow, the extreme apices of hind femora and apical halves of tarsi darkened, more blackish brown. *Vestiture* with the hairs on sides of frons in front, sides of face, antennae below and on genae snow-whitish or sericeous whitish; hair on basal half of frons, ocellar tubercle, antennae above and across extreme front margin of pronotum blackish brown to black; hair on pleurae, pectus, in metanotal tuft, on sides of tergites 1-4 and sides of 7 in ♂ and on sides of 1-2 in ♀ and to a great extent on venter in both sexes gleaming sericeous whitish; that on thorax above also predominantly sericeous whitish in ♂, but distinctly tinted very pale sericeous yellowish in ♀, especially across front part; prealar bristles whitish or pallid in ♂, pale yellowish to reddish yellow in ♀; bristly hairs on postalar calli and on scutellum also gleaming slightly pale sericeous yellowish in certain lights, more so in ♀; abdomen with a dense tuft of dark blackish brown hairs on sides of tergites 3-6 in ♀ and 5 and 6 in ♂, also with black ones across hind margin of last tergite in both sexes, more so in ♀ and also with dark hairs on last sternite in ♀; fine, hair-like scaling on sides of head sericeous whitish like that on frons in front, the sparse ones on occiput, in ♀ especially, gleaming golden; scaling on thorax, scutellum and abdomen above gleaming deep golden to slightly reddish golden in ♀, paler and sparser in ♂, that on abdomen in ♀ more densely concentrated across hind margin of tergite 1 and as ill-defined, narrowish bands across other tergites, especially on sides; rest of scaling on abdomen black; that on venter predominantly sericeous whitish, or pale sericeous yellowish in apical part only, in ♂ and predominantly pale sericeous yellowish to pale brassy yellowish in ♀; flattened scaling on legs mainly whitish. *Wings* more or less dimidiately infuscated, the greater apical and hinder parts however vitreous hyaline, with the dark coffee-brownish infuscation in anterior part occupying base, costal cell, basal halves of marginal and first submarginal cells, entire first basal cell and also greater part of second basal cell, the hind border of this infuscation extending into or confluent with a large rounded spot on apical cross vein of first basal cell and another spot at apex of second basal cell; a smaller spot-like infuscation also at base of third posterior cell and sometimes also at base of vein separating submarginal cells; apical part of anterior infuscation sharply and obliquely demarcated from hyaline apical part; veins brown-

ish; basal comb almost wanting; second vein normally bent up and not recurved at its end; a rudimentary stump at base of vein separating submarginal cells sometimes faintly indicated; first posterior cell widely open, its sides more or less parallel; axillary lobe comparatively narrow, reduced; alula much reduced; squamae subopaquely whitish to yellowish white, fringed with whitish hair; knobs of halteres very pale yellowish to whitish above. *Head* with the indentation in hind margin of eyes subangularly rounded; interocular space in ♂, at narrowest part in front of ocellar tubercle, narrow, about as broad as front ocellus, that on vertex in ♀ about $2-2\frac{1}{4}$ times distance between outer margins of hind ocelli; frons foveately depressed anteriorly; antennal joint 3 broadened basally, more or less bulb-shaped; proboscis stoutish, scarcely projecting much beyond buccal cavity, its labellar lobes short, broad, ovate, but shorter than base of proboscis. *Legs* with 1 or 2 spines on lower, medial, anterior aspect of middle femora and about 2 or 3 on outer, lower, apical aspect of hind ones as well as a variable number of small spinelets on upper outer apical aspect, of which 2 to 4 apical ones are longer. *Hypopygium* of ♂ (text-fig. 43) shown in side view and with a dorsal view of the right beaked apical joint.

From 3 ♂♂ and 2 ♀♀ (types in the Transvaal Museum).

Length of body: about $6\frac{1}{2}$ –7 mm.

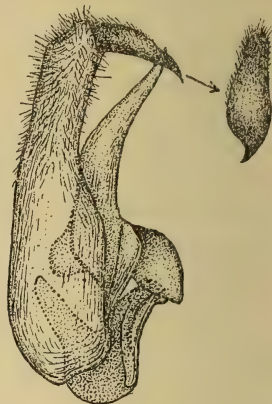
Length of wing: about $7-7\frac{1}{2}$ mm.

Locality: South-eastern Cape Province: Uitenhage at De Hoek (Munro, 11 March 1919).

Chiefly characterized by its dimidiately infuscated wings in which the roundish spots at apices of basal cells are confluent with the anterior infuscation and by its predominantly whitish hair and its yellowish legs.

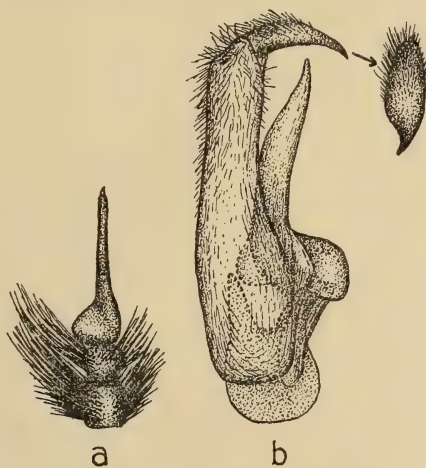
Lomatia heterocoma n. sp.

Body and legs black, tibiae however sometimes more blackish brown than black. *Vestiture* with the hair on frons and on antennae above and below in ♂ predominantly black and that on more than basal half of frons, on antennae above and intermixed ones below in ♀ also black as well as a few on lower parts of genae in some ♂♂; tuft of hair on each side of frons anteriorly just above antennae in ♀, numerous ones on antennae below in ♀ and sometimes some intermixed ones on antennae below in ♂ and dense hair on each side of face and on genae in both sexes gleaming sericeous whitish; hair on thorax above and below and densely and shaggily on sides of tergites 1–4 and predominantly on venter in ♂ snow-whitish or sericeous whitish; that on thorax above in ♀, especially on sides, and on upper part of mesopleuron and sides of tergites 1–4



TEXT-FIG. 43. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia dimidiata* n. sp.

in ♀ gleaming golden yellowish or very deep sericeous yellowish, that on sides of tergite 1 however more sericeous whitish; that on pleurae and on venter in ♀ sericeous whitish as in ♂, but contrasting with that on body above; prealar bristles usually with one, rarely two, black; postalar and scutellar bristly hairs whitish in ♂, yellowish or sericeous yellowish in ♀; metanotal tuft whitish in ♂, but sometimes with a few dark hairs intermixed, entirely yellowish in ♀; hair on sides of tergites 5-7 (or 8) black, dense and tuft-like in ♂, less shaggy in ♀ and in both sexes overhanging the whitish or pale ones on sides of venter below; hair-like scaling on body above in ♂ sparse, gleaming more whitish, conspicuously gleaming deep yellowish to reddish golden in ♀, very densely and broadly concentrated transversely across tergite 1 and on sides of the others; fine scaling on sides of head silvery whitish in ♂, pale sericeous yellowish in ♀, that on frons in front sericeous whitish in both sexes, but very sparse or wanting in ♂; scaling on venter gleaming sericeous whitish in ♂, more pale sericeous yellowish towards apex in ♀; fine hairs and flattened scaling on femora and tibiae snow-whitish. *Wings* mainly vitreous hyaline, but with the base, costal cell and entire or greater part of first basal cell in ♂ tinged subopaquely yellowish whitish to yellowish and in ♀ also with the basal halves of marginal and first submarginal cells and to a certain extent also second basal cell yellowish, the infused anterior part in ♀ thus not only more extensively but also slightly more deeply yellowish; faint, spot-like infuscations present at base of second and third veins and on apical cross veins of basal cells; basal comb almost wanting; second vein normally bent up at its end; axillary lobe moderately broad, arcuately rounded, more so in ♂; squamae opaquely whitish, dark-bordered, fringed with white hairs; knobs of halteres pale yellowish or yellowish white. *Head* with the interocular space in ♂, at narrowest part in front of ocellar tubercle, about as broad as front ocellus; space on vertex in ♀ about $2\frac{1}{4}$ - $2\frac{1}{2}$ times distance between outer margins of posterior ocelli; frons transversely depressed in front and in ♂ almost bare medially in this depression; antennal joint 3 (text-fig. 44, a) much broadened basally, more so below, distinctly bulb-shaped at base; proboscis short, stumpy, scarcely projecting beyond buccal cavity, its labellar lobes conspicuous, very broad, ovate, fleshy and longer than basal part of proboscis, resembling two cupped hands when opened. *Legs* usually with only 1 spine on middle femora in front, with 2 spines on outer lower



TEXT-FIG. 44. (a) Antenna of ♂ *Lomatia heterocoma* n. sp. (from inner side). (b) Side view of hypopygium and dorsal view of right beaked apical joint of ♂ of same species.

apical aspect and also 2 apical ones above on hind femora. *Hypophygium* of ♂ (text-fig. 44, *b*) showing side and dorsal views of right beaked apical joint, with the hairs on beaked apical joints rather longish and with the basal strut shaped as shown in figure.

From 3 ♂♂ and 2 ♀♀ (types in the Commonwealth Institute).

Length of body: about 6–7 mm.

Length of wing: about 7–8 mm.

Locality: Natal: National Park (Ogilvie, March 1932) (holotype); National Park (Mackie, March 1932) (allotype). Southern Rhodesia: Hope Fountain (Jones, 12 Feb. 1919).

The ♀-paratype from Rhodesia probably represents a slight varietal form, differing from the allotype in having no intermixed black hairs on antennae below and in having the yellowish infusion in anterior part of wings slightly more intense.

Lomatia matabeleënsis n. sp.

Two much-denuded specimens in the collections before me resemble the ♀ of *heterocoma* so closely that they may almost be considered as a variety or race of it. Certain distinct differences, however, point to a separate specificity. Compared with *heterocoma* they show the following differences:

Antennal joint 3 distinctly more rapidly broadened basally below, its lower basal part distinctly more projecting, more lobe-like, the base thus more golf-driver-club-shaped and not bulb-shaped; labellar lobes of proboscis relatively shorter, less broad and even shorter than base of proboscis. *Wings* with the clear part tending to be more greyish hyaline than vitreous hyaline; anterior infuscated parts tending to be darker, more brownish; veins on the whole darker; knobs of halteres distinctly darker, more yellowish brownish above. *Legs* with the tibiae distinctly paler, more reddish brownish to sienna brownish. *Vestiture* without any or with much fewer intermixed black hairs on antennae below; hair on thorax above and on sides of abdomen more sericeous whitish, not sericeous yellowish or yellowish; prealar bristles usually with two conspicuous black ones; hair on abdomen with a few black ones on each side submedially across hind margin of tergite 1 and with the black ones on sides of 5–7 apparently less dense; scaling on abdomen above less deep golden yellowish, more brassy or sericeous yellowish, especially on sides towards apex, and with band of scaling across tergite 1 apparently narrower.

From 2 ♀♀ (type in the Commonwealth Institute).

Length of body: about $5\frac{1}{2}$ – $6\frac{1}{3}$ mm.

Length of wing: about $6\frac{1}{2}$ – $6\frac{2}{3}$ mm.

Locality: Southern Rhodesia: Bulawayo (Rhod. Mus., 1 Jan. 1923).

Lomatia tenera Lw.

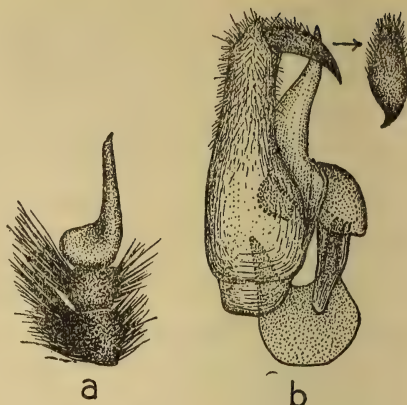
(Loew, p. 208, *Dipt. Faun. Südaf.*, i, 1860.)

In the collections before me Bezzi wrongly labelled two entirely different species as *tenera* Lw., both of which do not agree with Loew's description and

which are now referred to two new species, *canescens* and *albizonata* respectively, in this revision. It thus appears that this species has not been recorded in any collection since Loew described it from a single ♂-specimen in 1860. There are 2 ♂♂ and 1 ♀ of a species before me which agree with Loew's description (loc. cit.) as far as it goes. A supplementary description of this species, as based on these specimens, is as follows:

Body black; proboscis and legs however sienna brownish to blackish brown, the tibiae, especially front and middle ones, tending to be slightly paler. *Vestiture* with the hair on basal half of frons in ♂ and in slightly more than basal half in ♀ and that on antennal joint 2 above dark or blackish brown; that on frons anteriorly, on antennal joint 1 above, densely on antennae below, on sides of face and down genae gleaming sericeous or snow-whitish; hair on thorax above dense, gleaming more or less sericeous whitish in ♂, sericeous yellowish to pale golden in ♀, that across front part of thorax in ♂ however distinctly sericeous yellowish to golden to a variable extent; hair on pleurae entirely sericeous or snow-whitish in both sexes, but in ♀ contrasting much with that above; prealar, postalar and scutellar bristles usually not dark; fine, erect hairs discally on tergites 1-5 in ♂ sericeous whitish, but with a slight, pale, sericeous yellowish sheen in certain lights; dense, shaggy hair on sides of tergites 1-4 in ♂ gleaming conspicuously sericeous or silvery whitish, contrasting much with the dense black tufts on sides of tergites 5-7 and the black hairs across hind margin of 8; hairs on abdomen above in ♀ slightly more sericeous yellowish and dense, pale ones on sides of tergites 1-4 whitish on sides of 1 and 2, but becoming sericeous yellowish to yellow on sides of 3 and 4, that on sides of 5-7 in ♀ also black; hairs on venter gleaming sericeous or snow-whitish in both sexes, denser along sides, even under lateral black tufts, and those on each side on last sternite, in ♂ especially, sometimes conspicuously tufty and visible from above through the slightly sparser black hairs on sides of tergite 7; fine hairs on femora also white; scaling on body above sparse, gleaming whitish in ♂, denser and brassy to golden yellowish in ♀, arranged in denser and much broader bands across hind margins, especially on sides in ♀ where the bands occupy almost entire tergal surface; rest of abdomen above with black scales; scaling on venter predominantly sericeous or silvery whitish in both sexes; flattened scaling on legs predominantly whitish, that towards apical parts of femora above and to a certain extent on tibiae tinted feebly yellowish or greyish yellowish. *Wings* vitreous hyaline, iridescent, with the base, alula, costal cell and to a certain extent base of first basal cell subopaquely yellowish whitish; veins yellowish brownish to brownish; basal comb wanting; second vein undulating, rapidly bent up at its end; first posterior cell broadly open, not narrowed apically; middle cross vein at about, or a little less than, apical third of discoidal cell; the latter subtruncate to subacute apically; axillary lobe arcuately rounded, moderately broad; squamae opaquely whitish to yellowish whitish, dark-bordered, fringed with white hairs; knobs of halteres very pale yellowish to almost white. *Head* with the indentation in hind margin of eyes not very deep, subangularly

rounded; interocular space in ♂, at narrowest part in front of ocellar tubercle, narrow, about as broad as front ocellus, the space on vertex in ♀ a very little less than twice distance between outer margins of posterior ocelli; frons anteriorly and medially slightly depressed longitudinally, with fairly dense hairs, even medially, in front in ♂; antennae (text-fig. 45, *a*) with joint 3 almost golf-driver-club-shaped at base, the lower part at base being prominent; proboscis short, stumpy, not projecting much beyond buccal cavity, its labellar lobes fleshy, broad, ovate and subequal in length to shiny basal part. *Legs* usually with 1 spine on anterior lower medial aspect of middle femora; hind ones usually with



TEXT-FIG. 45. (*a*) Right antenna of ♂ *Lomatia tenera* Lw. (from inner side). (*b*) Side view of hypopygium and dorsal view of right beaked apical joint of ♂ of same species.

about 2 spines on lower outer apical aspect and 2 apically above; basal joint of front tarsi in ♀ without any long, bristle-like spicules below. *Hypopygium* of ♂ (text-fig. 45, *b*) from side and with a dorsal view of right beaked apical joint.

In the Transvaal and South African Museums.

Length of body: about $5\frac{1}{2}$ – $6\frac{1}{2}$ mm.

Length of wing: about 6 – $6\frac{1}{2}$ mm.

Locality: Transvaal: Pretoria (Munro, 20 Dec. 1914 and 1 Jan. 1916); Pretoria (Swierstra, 18 Dec. 1905).

Characterized by the sericeous whitish hair on frons in front, on antennae and face in both sexes, the predominantly whitish hair on thorax and abdomen above in ♂ and the yellowish to golden ones across front part of thorax.

Lomatia mitis Lw.

(Loew, p. 209, *Dipt. Faun. Südaf.*, i, 1860, nec Hesse, p. 171, *Ann. Transv. Mus.*, xvii, 1936.)

A somewhat denuded ♀ from South-West Africa in the collections of the South African Museum appears to represent *mitis* which Loew described from a ♀ collected in South-West Africa by Wahlberg. It agrees in most respects with Loew's short description and is as he stated in a footnote very close to *tenera*. From the ♀ of the specimens which I take to be *tenera* it differs in the following respects:

Vestiture with black hairs on antennae above and numerous black ones intermixed below; hair on face slightly more sericeous yellowish; those on thorax above (as far as these are still present) pale sericeous yellowish, less yellowish than in *tenera*; thoracic and scutellar bristles also yellowish; hair on pleurae

also sericeous whitish; those on sides of tergites 5-7 also black as in *tenera*. *Wings* with the discoidal cell relatively longer, subequal in length to first posterior cell; third posterior cell relatively longer; third and second posterior cells tending to be equally wide on hind margin and not with the second broader than third as in *tenera*. *Head* with the interocular space on vertex (♀) slightly broader, quite or a very little more than twice width of ocellar tubercle; frons anteriorly more depressed transversely; antennal joint 3 distinctly less broadened basally below, less golf-driver-club-shaped, but more bulb-shaped at base, more conical and more gradually tapering from base, thus less slender; proboscis even slightly stouter, its labellar lobes shorter than basal part. *Legs* as in *tenera*, the front tarsi also without longish, bristle-like spicules below.

Length of body: about 7 mm.

Length of wing: about 7 mm.

Locality: South-West Africa: Kaross in the Kaokoveld (Mus. Exp., Feb. 1926).

My identification of this species in 1936 (loc. cit.) was based on identifications of Bezzi which I have since found to be erroneous. I have consequently described the 1936 specimens as a new species, *kalaharica*, further on. From Loew's description of *inornata* (p. 209, *Dipt. Faun. Südaf.*, i, 1860), also from South-West Africa, and which Bezzi subsequently renamed *loewi* (p. 613, *Trans. Ent. Soc. Lond.*, 1911), it is doubtful whether the latter is a species distinct from *mitis*. It apparently differs only in size, in having fewer black hairs on sides of tergites 5-7 and more yellowish hair on venter. It may only represent a smaller form of *mitis*.

Lomatia latifrons n. sp.

Body black; labellar lobes of proboscis dark piceous brownish; tibiae and basal parts of tarsi predominantly yellowish to pale yellowish brownish, contrasting with black femora; apices of tibiae darkened to a variable extent and greater part of tarsi, especially last four joints, also darkened. *Vestiture* with the hair on head, thorax, scutellum and abdomen above and below predominantly and conspicuously snow-whitish or sericeous whitish; shortish, bristly hairs on ocellar tubercle, at base of frons and some, or a few, intermixed hairs at extreme apex of abdomen dark or blackish; prealar bristles and fine hairs on femora also entirely white; pale scaling on body above also gleaming sericeous whitish, that on abdomen (as far as it is not denuded) arranged across hind margins of tergites, especially on sides; rest of scaling on abdomen black; scaling on legs white. *Wings* clear, vitreous hyaline, iridescent, with only base, alula, costal cell and to a certain extent base of first basal cell subopaquely whitish, only very extreme base of wings blackish; veins dark brownish, the first vein and the others towards extreme base paler, more yellowish brownish; basal comb represented by an inconspicuous, small tuft of sericeous whitish hairs; apical part of second vein rather rapidly bent up; first posterior cell distinctly narrowed apically; middle cross vein at a little less than apical third to apical fourth of

discoïdal cell; the latter subtruncate apically; axillary lobe very well developed, roundly lobe-like; alula also well developed for this genus; squamae opaquely whitish, fringed with white hairs; knobs of halteres almost white. *Head* with the interocular space on vertex in ♀ remarkably broad, about 3, or even a little more, times distance between outer margins of posterior ocelli; frons thus remarkably broad, only about half as broad again across antennae as on vertex, transversely depressed anteriorly and with the hairs equally dense in depression as on sides anteriorly; antennal joint 3 broadened bulb-like or club-like basally, the lower basal part not prominently produced; proboscis shortish, stumpy, not projecting much beyond buccal cavity, its labellar lobes fleshy, broad, ovate and a little shorter than base. *Legs* with the usual 1 spine on middle femora in front; hind ones with about 2 or 3 spines on lower outer aspect in apical part, with some small spinelets on lateral outer and upper aspect and with a few apical spines above; basal joint of front tarsi in ♀ with some longish, bristle-like spicules below. From 2 ♀♀ in the South African Museum.

Length of body: about 8–9 mm.

Length of wing: about 8–9 mm.

Locality: North-western Namaqualand (Richtersveld): Lekkersing (Mus. Esp., March 1935).

Easily recognized by the predominantly sericeous whitish hair on entire body, absence of black hairs on sides of abdomen, yellowish tibiae and broad interocular space. The broad interocular space and comparatively broad frons distinguish it at once from ♀♀ of other species belonging to the group with short and stumpy proboscis and hyaline wings.

Lomatia leucophasia n. sp.

Body black; labellar lobes of proboscis dark brownish; tibiae and especially tarsi also tending to be more piceous brownish or blackish brown than black. *Vestiture* with the hair on entire frons and on antennae above in ♂ and on frons basally in ♀ black; that on antennae below, sides of face and on genae snow- or sericeous whitish in both sexes; hair across front of collar, in ♂ especially, appearing dark in certain lights; that on thorax, scutellum, pleurae and entire abdomen above and below gleaming sericeous whitish in both sexes; two prealar bristles in ♂ sometimes dark or blackish; abdomen without any black hairs or tufts on sides, all the hair being sericeous whitish and that towards apex on discal parts of tergites 5–7 (or 8) conspicuously dense like that on sides of tergites; fine hairs on femora entirely whitish; hair-like scaling on body above (where not rubbed off) whitish in ♂, but tinted slightly sericeous yellowish to pale brassy in ♀; flattened scaling on legs dense, predominantly snow-whitish. *Wings* clear, vitreous hyaline, iridescent, with the base, costal cell and to a certain extent base of first basal cell subopaquely pale yellowish whitish to whitish, only extreme base of wings dark; veins mainly yellowish, sometimes

becoming pale yellowish brownish towards apex and hind border; basal comb wanting; second vein roundly bent up at its end; first posterior cell broadly open, but slightly narrowed apically; middle cross vein at about apical third to apical fourth of discoidal cell; the latter subtruncate apically; axillary lobe markedly well developed, broadly rounded and lobe-like; alula also relatively well developed; squamae opaquely whitish, fringed with white hairs; knobs of halteres very pale, almost white. *Head* with interocular space on vertex in ♂ as wide as ocellar tubercle, the space in front of tubercle about as broad as front ocellus; interocular space in ♀ about twice distance between outer margins of posterior ocelli; frons relatively broader anteriorly in ♂ than in ♀, medially foveately depressed anteriorly, slightly more broadly so in ♂, this depression bare in ♂, but less so in ♀; antennae (text-fig. 46, *a*) with joint 3 broadened club-like or sub-bulb-like at base, the lower basal part not very prominently bulging, the rest of joint rather stoutish and longish; proboscis shortish, projecting only very slightly beyond buccal cavity, its labellar lobes fleshy, broad, ovate and a little shorter than shining basal part. *Legs* with 1 spine on lower anterior aspect of middle femora; hind ones with 1 or 2 spines on outer lower apical aspect and some smaller, irregularly arranged spinelets on outer lateral aspect in apical half and also 2 or 3 longer ones apically above; basal joint of front tarsi in ♀ without very long spicules below. *Hypopygium* of ♂ (text-fig. 46, *b*) from side and also with the right beaked apical joint shown from above; lateral struts rather long.



TEXT-FIG. 46. (*a*) Right antenna of ♂ *Lomatia leucophasia* n. sp. (from inner side). (*b*) Side view of hypopygium and dorsal view of right beaked apical joint of ♂ of same species.

From 7 ♂♂ and 2 ♀♀ (types in the South African Museum, paratypes in the British Museum).

Length of body: about 6–7 mm.

Length of wing: about 6–7 mm.

Locality: South-West Africa: Kaross in the Kaokoveld (Mus. Exp., March 1925) (types); Warmbad (Mus. Exp., Feb. 1925); Okahandja (Turner, 17–23 Feb. 1928). Cape Province: Worcester (Turner, 17–31 Aug. 1928).

Easily recognized by its predominantly sericeous whitish hair, entire absence of black hairs or tufts on sides of abdomen and clear, hyaline wings in which the axillary lobe is well developed. The ♂-specimen from Worcester does not differ in any way from the South-West African specimens and, unless the Cape locality is wrong (which is quite probable) this species is widely distributed.

Lomatia ovamboënsis n. sp.

A somewhat denuded ♂-specimen, of which the antennae are also missing, resembles *leucophasia* so closely that it may even be considered as a distinct variety of the latter. Certain characters, however, seem to point to a separate specificity. Compared with specimens of *leucophasia* it differs in having the hairs on antennal joints 1 and 2 below predominantly black and not entirely white; those on genae also not entirely whitish, but with intermixed dark ones on lower parts; hair on body more straw-coloured than sericeous whitish, that on sides of abdomen even distinctly tinted more sericeous yellowish and without any dark prealar bristles; interocular space in ♂ in front of ocellar tubercle distinctly longer, much more than length of tubercle; frons anteriorly less distinctly and less deeply depressed. Wings with the first posterior cell distinctly more broadly open, its sides not converging apically, more or less parallel; axillary lobe slightly less arcuately rounded. *Hypopygium* also very closely resembles that of *leucophasia*, but the beaked apical joints appear slightly shorter and thus relatively broader; basal strut similarly shaped, but more brownishly chitinized posteriorly and distance between dorsal incision and hind margin distinctly less than in *leucophasia*.

From a ♂ in the South African Museum.

Length of body: about 5 mm.

Length of wing: about 5 mm.

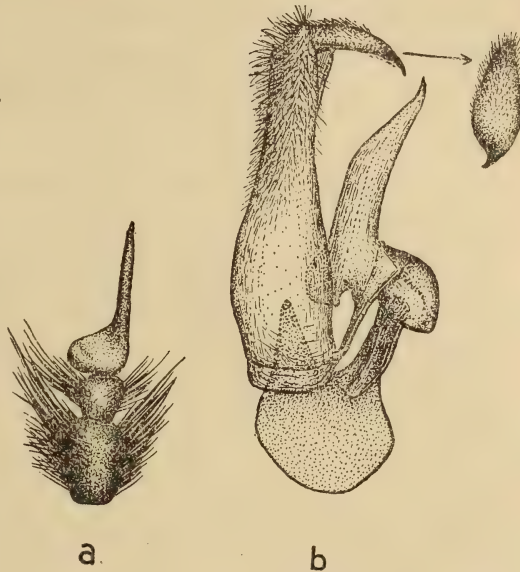
Locality: South-West Africa: Nomtele in Ovamboland (Barnard, Feb. 1921).

Lomatia melanthia n. sp.

Body predominantly black; sutural parts of pleurae and basal parts of postalar calli sometimes infused with dark piceous brownish to blackish brown; proboscis and legs, especially tibiae, usually also dark reddish brownish or piceous brownish. *Vestiture* with the hair on frons, antennae above and below, sides of face and on genae in ♂ predominantly black, a few hairs or a small tuft on side of face however gleaming whitish; hair on thorax above, on pleurae and legs entirely very dark blackish brown to black, having a slight purplish or mauvish black, velvety tint in certain lights; hair on scutellum gleaming sericeous yellowish; that in metanotal tuft black; dense, tuft-like and shaggy hairs on sides of tergites 1-3 conspicuously sericeous or silvery whitish, contrasting much with the dark, velvety blackish brown or black tufts on sides of 4-7; dark blackish brown or blackish hairs also present on extreme sides basally of tergite 1 and sometimes also on extreme sides of 2 basally and with black, bristly ones across hind margin of 8; fine, sparse, longish, erect hairs on abdomen discally predominantly sericeous whitish, but with a slight pale sericeous yellowish tint in certain lights and with the shortish ones dark or black; fine hairs on venter predominantly sericeous whitish to very pale sericeous yellowish; hair-like

scaling on abdomen above composed of sericeous whitish to very pale sericeous yellowish ones and black ones, the pale ones arranged in narrowish bands across hind margins of tergites, especially on sides, being more conspicuous, slightly longer and almost tufty on sides towards apex and on sides of tergite 7; scaling on venter concentrated as sericeous whitish bands across hind margins of sternites; scaling on legs predominantly very dark, gleaming greasy and brownish in certain lights. *Wings* vitreous or slightly greyish hyaline, iridescent, with only the base up to cross vein in costal cell and including alula yellowish, becoming more brownish at extreme base; veins pale yellowish brownish, the first, third and fifth veins being more yellowish towards base; basal comb wanting; first posterior cell broadly open, not or scarcely narrowed apically; middle cross vein ranging in position from nearly apical fifth to less than apical third of discoidal cell; the latter somewhat acute apically,

its apical vein being subparallel to hind border; axillary lobe broadly and arcuately rounded; squamae opaquely brownish, fringed with dark velvety brownish to blackish brown hairs; halteres brown, their knobs dark brownish. *Head* with the indentation in hind margin of eyes relatively slight, rounded; interocular space on vertex in ♂ as broad as ocellar tubercle and, at narrowest part in front of tubercle, about as broad as front ocellus for a distance quite as long as tubercle; frons triangular, very shallowly or scarcely depressed anteriorly, this anterior area bare medially; antennae (text-fig. 47, a) with the broadened base of joint 3 more or less in between golf-driver-club-shaped and bulb-shaped, the lower basal part prominent, but not so bulging as in some other species; proboscis short, stumpy, not projecting much beyond buccal cavity, its labellar lobes broad, fleshy, ovate and quite as long as, or a little longer than, base. *Legs* with the fine hairs on femora well developed; middle femora with a feeble spine on anterior lower medial aspect; hind ones with apparently only 1 feeble spine on lower outer apical aspect and another apically above; spicules in outer upper row on middle tibiae rather well developed, almost bristle-like. *Hypopygium* (text-fig. 47, b) from the side and also with a dorsal view of the right beaked apical joint; hairs on apical parts of basal parts



TEXT-FIG. 47. (a) Right antenna of ♂ *Lomatia melanthia* n. sp. (from inner side). (b) Side view of hypopygium and dorsal view of right beaked apical joint of the same species.

fairly dense and conspicuous; beaked apical joints fairly broadish across apical part just beyond middle.

From 4 ♂♂ (type in the Rhodesian Museum, paratypes in the Transvaal and South African Museums).

Length of body: about 6–7 mm.

Length of wing: about 6–7½ mm.

Locality: Southern Rhodesia: Bulawayo (Rhod. Mus., 29 Nov. 1922) (type); Sanyati Valley (Stevenson, Sept.–Oct., 1925); Vumbu Mts. (Drysedale March 1936).

Characterized by the conspicuous and contrasting tufts of sericeous whitish hair on sides of tergites 1–3, the predominantly black hair on head, thorax and pleurae. The type was labelled *nigrescens* Ric. According to the description of Ricardo (p. 92, *Ann. Mag. Nat. Hist.*, (7), vii, 1901) and specimens of *nigrescens* in the Transvaal Museum, this determination is however erroneous. The true *nigrescens* has a small tuft of silvery hairs on inner aspect of first antennal joints, pale hairs on thorax above, in front and on sides, whitish hairs on dorsum, a white squamal fringe, a longer and more slender proboscis, etc.

Lomatia melanoloma n. sp.

Body predominantly black; femora ranging in colour from yellowish brownish, brownish, dark piceous brownish to blackish brown, their upper surfaces usually dark; tibiae and basal halves of tarsi, especially front and middle tibiae, usually paler than femora, more pale yellowish brownish to yellowish, the tarsi becoming darker apically. *Vestiture* with the hair on basal half of frons, on antennae above in both sexes, some distinct intermixed ones on antennae below in ♂ and rarely with a few in some ♀♀ and sometimes with a few or some hairs on lower part of genae in ♂ black; hair on front half of frons and on sides of face in both sexes and predominantly on antennae below, especially in ♀, and those on entire genae, in ♀ especially, sericeous or silvery whitish; fine hair on thorax above and on its sides predominantly sericeous whitish in both sexes; that in collar in front, some intermixed ones on sides of thorax in front of wings and on upper part of mesopleuron, three or four prealar bristles, postalar and scutellar bristles however black; some hairs on each side, just above wings, sometimes tinted slightly sericeous yellowish; hair on pleurae and fine ones on femora entirely sericeous or silvery whitish; hairs in metanotal tuft black; hair on sides of tergite 1 and to a certain extent also on sides of 2 basally and sometimes also sparsely intermixed ones on sides of 3 and 4 gleaming conspicuously sericeous whitish, contrasting with the conspicuous tufts of predominantly black hair on sides of tergites 2–7 (or 8) and the black ones across hind margin of last tergite; hair on venter sericeous whitish and even those on last sternite predominantly whitish; pale hair-like scaling on body gleaming predominantly sericeous whitish in both sexes, denser across hind margins laterally on tergites, especially sides of 1, becoming longer, more hair-like and tufty on sides of

posterior tergites; rest of scaling on greater part of abdomen above however dark or black; scaling on venter predominantly sericeous whitish; that on legs greyish whitish, but appearing dark or even blackish in certain lights. *Wings* mainly vitreous hyaline, iridescent, with only base up to cross vein in costal cell yellowish brownish to brownish and costal cell subopaquely yellowish to yellowish brownish; veins dark brownish, the costal vein, false vein and first main vein however more yellowish or pale yellowish brownish; basal comb poorly developed; second vein more or less straight, rapidly bent up at its end; first posterior cell broadly open, not visibly narrowed apically; middle cross vein usually between apical fourth and apical fifth of discoidal cell; the latter more or less truncate apically, its apical vein straight, somewhat oblique; axillary lobe arcuately rounded, not very much reduced; squamae opaquely dirty whitish, dark-bordered, fringed with white hairs; halteres dirty yellowish, their knobs brownish. *Head* with the interocular space on vertex in ♂ narrowly as wide as ocellar tubercle, the space in front of tubercle very narrow for a distance subequal to length of tubercle, at narrowest part about as broad as front ocellus; space on vertex in ♀ about 2, or a little more, times distance between outer margins of posterior ocelli; frons gradually widened anteriorly in ♀, its apical width comparatively narrow in both sexes, its basal half in ♀ appearing polished and shining, its medial apical part longitudinally depressed in both sexes and with fairly dense hair anteriorly, even in middle, in both sexes; face medially slightly convex and shining; upper part of groove between buccal cavity and inner margin of eyes relatively deep; antennae (text-fig. 48, *a*) with joint 3 broadened bulb-like basally, the lower basal part more bulging than above, its slender part longish, sometimes quite 3 times length of broad base; proboscis short, scarcely projecting beyond buccal cavity, its labellar lobes short, fleshy, ovate and much shorter than basal part. *Legs* with about 2-4 (usually 3 or 4) spines on anterior medial lower aspect of middle femora; hind ones with about 4-8 spines in a more or less irregular row on lower outer aspect from about middle and also with 1 or 2 apical ones above; basal joint of front tarsi in ♀ with some or a few longish, bristle-like, pale spicules below, the longest being nearly, or quite, as long as joint itself. *Hypopygium* of ♂ (text-fig. 48, *b*) from the side and also with a dorsal view of right beaked apical joint; basal strut more or less slightly produced apically as shown in this side view.

From 4 ♂♂ and 10 ♀♀ (types in the South African Museum).

Length of body: about 6-7½ mm.

Length of wing: about 6-7 mm.

Locality: North-western Namaqualand (Richtersveld): Lekkersing (Mus. Exp., March 1935).

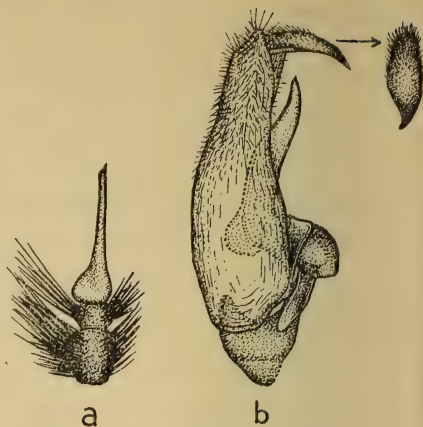
An interesting species which is apparently only found in Namaqualand and which is characterized by the extensive black hair on sides of abdomen, the pale tibiae and vitreous hyaline wings. From other species in the next Group, with extensive black hair on sides of abdomen and hyaline wings, it may at

once be distinguished by the short proboscis and more numerous spines on hind femora.

Lomatia subcaliga n. sp.

Body black; proboscis and tibiae tending to be dark piceous brownish. *Vestiture* with the hair on greater part of frons, antennae above and densely below and some on lower part of genae in ♀ black; a tuft on each side of frons just above antennae, some intermixed hairs mostly on inner lower aspect of antennae, hair on sides of face and predominantly on genae silvery or sericeous whitish; hair on pleurae, in mesopleural tuft, on sides of scutellum, in metanotal tuft, densely on sides of tergites 1-3, on venter and hairs on femora sericeous or snow-whitish; sparse, erect

hairs on thorax and scutellum above, intermixed ones on humeral angles and on sides of thorax, prealar, postalar and scutellar bristles, dense tufts on sides of tergites 4-6, bristly ones across hind margin of tergite 7, some intermixed ones sometimes present apically on sides of 3 and hairs across hind margin of last sternite black; scaling on sides of head silvery whitish; that on body above sericeous yellowish to pale brassy yellowish; pale scaling on abdomen above arranged across hind margins of tergites, broadest across 1 and in form of small tufts on sides of 4-6, thus contrasting much with the black tufts laterally; rest of scaling on abdomen above black; scaling on venter whitish; flattened scaling on legs greyish to cretaceous whitish on inner hinder surfaces, but gleaming brownish or greyish brownish, or even dark, on anterior aspect. *Wings* faintly, though distinctly, tinged greyish, appearing faintly greyish brownish in certain lights, iridescent, with the base, costal cell and to a certain extent base of first basal cell slightly more subopaquely darker, more yellowish brownish; veins brown to dark brownish, becoming more yellowish brown or yellowish towards base; a distinct basal comb wanting; first posterior cell only very slightly, or scarcely, narrowed apically; middle cross vein at about a little less than apical fourth of discoidal cell; apex of latter somewhat acute; axillary lobe narrow, reduced; alula also much reduced; squamae opaquely brownish, fringed with white hairs; halteres yellowish brownish or brown, their knobs dark brown. *Head* with the indentation in eyes behind somewhat angular; interocular space on vertex in ♀ a little less than 2 times distance between outer margins of posterior ocelli; frons anteriorly slightly transversely depressed, almost without any hairs medially in front; antennal joint 3 more or less in between bulb-shaped and golf-driver-club-shaped at base;



TEXT-FIG. 48. (a) Right antenna of ♂ *Lomatia melanoloma* n. sp. (from inner side). (b) Side view of hypopygium and dorsal view of right beaked apical joint of ♂ of same species.

proboscis stumpy, but projecting a little beyond buccal cavity, almost reaching antennae, its labellar lobes well developed, fleshy, broad, subequal to, or even slightly longer than, shining basal part. *Legs* with 1 or 2 spines on anterior lower medial aspect of middle femora; hind ones with about 2 spines on lower outer aspect in apical half and also with at least 2 apical spines above and with some minute spinelets on outer lateral and upper aspect; basal joint of front tarsi in ♀ without any longish, bristle-like spicules below.

From a ♀ in the Commonwealth Institute.

Length of body: about $7\frac{1}{2}$ mm.

Length of wing: about $7\frac{1}{2}$ mm.

Locality: Southern Rhodesia: Bulawayo (Rhod. Mus., 8 Jan. 1922).

Characterized by its faintly tinged wings. There is a strong suspicion that this ♀ may eventually prove to be that of *melanthia* n. sp., but as the ♂ of the latter species has black hair on the entire head and thorax, predominantly dark scaling on legs and less greyishly tinged wings, this ♀ is provisionally placed as a separate species. It must, however, be remembered that there is much dimorphism as far as the colour of the vestiture is concerned in some species of *Lomatia* and that in such cases it is difficult to correlate or to allocate the sexes unless they are caught together at the same locality and at the same time.

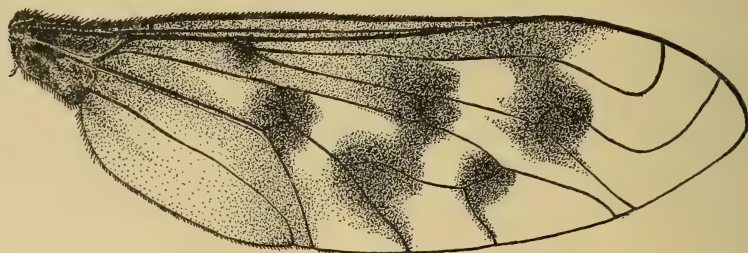
Section 3

Representatives referred to this section of Group I usually have the wings much spotted, with distinct spots or infusions on cross veins and other veins and in some forms their spotted pattern is reminiscent of that of species of *Anthrax*; knobs of halteres are usually dark.

Lomatia pterosticta n. sp.

Body black; legs predominantly pale yellowish brownish to pale reddish brown, the extreme apices of front and middle femora, apical parts of hind ones, extreme bases of tibiae and apical halves of tarsi darkened and with bases of femora in some specimens also infused. *Vestiture* with the hair on sides of frons anteriorly, on sides of face, predominantly on antennae below and on genae sericeous whitish; hair on basal half of frons, antennae above and antennal joint 2 below and sometimes a few intermixed ones on antennal joint 1 below black; hair on sides of thorax above and across front part predominantly whitish, but gleaming slightly sericeous yellowish, especially anteriorly, due to intermixed yellowish or yellowish-tipped hairs, appearing more greyish white in certain lights; fine, bristly hairs on disc of thorax predominantly black, those on sides just above wings denser, more tuft-like; intermixed bristly hairs and prealar bristles on each side and some postalar and scutellar bristles also black; some of the prealar bristles in some specimens, intermixed bristles on upper part of mesopleuron and on humeral part, some intermixed hairs on sides of thorax

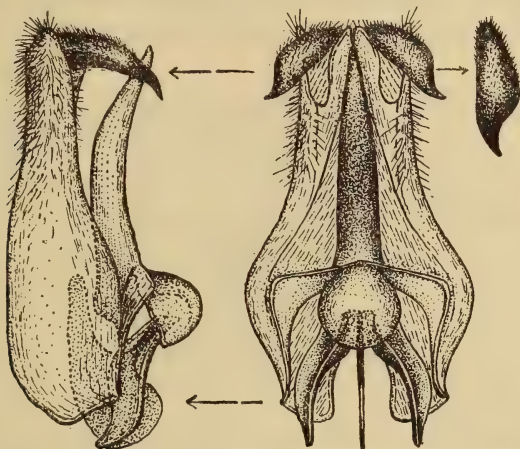
above wings on postalar calli and also on scutellum yellowish reddish or even appearing reddish golden; hair on pleurae and pectus predominantly white; hair in metanotal tuft and on sides of tergite 1 sericeous whitish or very pale sericeous yellowish in certain lights; erect hairs on discal parts of tergites 2 and 3 predominantiy whitish, those on rest of abdomen above dark or blackish; a dense, shaggy tuft of conspicuous snow- or sericeous whitish hair on sides of tergites 3 and 7 in ♂ and 3 and 6 in ♀, separated by conspicuous, shaggy tufts of dense black hair on sides of tergites 2, 4, 5 and 6 and with black ones also across hind margin of last tergite; fine, hair-like scaling on each side of head sericeous whitish to very pale sericeous yellowish; that on disc of thorax and scutellum deep golden to reddish golden, especially in ♀; scaling on abdomen above composed of reddish golden and black ones, the golden ones more or less



TEXT-FIG. 49. Wing of *Lomatia pterosticta* n. sp.

arranged across hind margins of tergites, especially across 1 in ♀ and also on sides of the others in both sexes where the individual scales are longer, even more tufty; scaling on venter silvery or sericeous whitish, more concentrated across hind margins of segments; flat scaling on legs, especially femora, whitish, but dark on apices of femora and more yellowish on tibiae. *Wings* (text-fig. 49) very characteristically infuscated and spotted, the brownish to blackish brown infuscation in form of an infusion occupying base, costal cell, greater part of marginal cell, basal half of first submarginal cell and the entire first basal cell, and of large rounded spots at apex of second basal cell, apex of first basal cell, at base of second submarginal cell and at bases of second and third posterior cells respectively, the spot at base of second submarginal cell being confluent with infuscation in marginal cell and with the spots at apex of first basal cell and base of third posterior cell also confluent, the latter also extending to a variable extent as an infusion down vein between third and fourth posterior cells; apical parts of anal and axillary cells also infused to a variable extent and in some specimens even the apical parts of third and fourth posterior cells or even base of second basal cell clouded or infused to a variable extent; rest of wings greyish hyaline or clear; veins dark or blackish brown; basal comb poorly developed; second vein much recurved at its end; vein between submarginal cells usually bent at right angles at its base and there with a shortish stump; first posterior cell distinctly narrowed apically, more or less sub-

spindle-shaped; middle cross vein at about, or a little more than, apical third of discoidal cell; axillary lobe relatively well developed, arcuately rounded, more so in ♂ than in ♀; alula well developed for a *Lomatia*, its apical lobe relatively broad; squamae opaquely dirty whitish to yellowish or even yellowish brownish, dark-bordered, fringed with whitish hairs; halteres brownish at base, becoming more yellowish apically, their knobs brownish above. *Head* with the interocular space on vertex in ♂ as broad as small ocellar tubercle, at narrowest part in



TEXT-FIG. 50. Side and ventral views of hypopygium of ♂ *Lomatia pterosticta* n. sp.

front of tubercle very narrow, only about as wide, or even slightly narrower than, small front ocellus; interocular space on vertex in ♀ broadish, a little more than 2, or even about $2\frac{1}{2}$, times distance between outer margins of posterior ocelli; frons somewhat flattened or flatly depressed anteriorly in ♂, slightly more transversely so in ♀; antennal joint 3 gradually broadened from base, bulb-like basally, more rapidly narrowed below than above; proboscis short, stoutish, stumpy, scarcely projecting beyond buccal cavity, its labellar lobes broad, ovate and fleshy. *Legs* with about 2 or 3 spines on lower anterior part of middle femora; hind ones with a variable number of spines (2–6) in a row on outer lower part from just before middle and with 8–13 irregularly disposed, small spines on outer upper apical part; basal joint of front tarsi in ♀ with some longer and more bristle-like spicules below. *Hypopygium* of ♂ (text-fig. 50) with the various structures as shown in the side and ventral views; basal strut shaped as shown in dotted outline in left-hand figure.

From 14 ♂♂ and 21 ♀♀ (types and paratypes in the South African Museum).

Length of body: about $6\frac{1}{2}$ – $8\frac{1}{2}$ mm.

Length of wing: about 7 – $8\frac{1}{2}$ mm.

Locality: North-western Namaqualand (Richtersveld): Lekkersing (Mus. Exp., March 1935).

Easily recognizable by its characteristically spotted wings which are reminiscent of the wing-pattern of the *megaspilus*-group of *Bombylius* or that of certain species of *Anthrax*. It cannot be confused with any other known African species of *Lomatia* with the possible exception of *spiloptera* Bezz. (p. 148, *The Bombyliidae of the Ethiopian Region*, 1924) described from Nyasaland and which also has a similar type of wing-pattern. According to Bezzi's description the latter however differs from this species chiefly in having the infuscation and pattern of spots in the wings slightly differently arranged, the first posterior cell not narrowed apically, antennal joint 3 more bulging basally below and the legs entirely black.

Lomatia uniplaga n. sp.

Body black; legs predominantly pale reddish yellow to pale yellowish brownish, the extreme apices of hind femora and tibiae and greater part of all the tarsi darkened. *Vestiture* (as far as this has not been denuded in the specimens) with the hair on frons anteriorly, especially sides, antennae above and below, sides of face and down genae sericeous whitish; hair on thorax above, pleurae, pectus, venter and even on abdomen above predominantly whitish or sericeous whitish; some hairs on sides of thorax above wings gleaming yellowish; presence of some black hairs only on sides of tergite 2 indicated in these denuded specimens; most of the short hairs on last tergite also blackish; prealar, postalar and scutellar bristles (where still indicated) pallid or yellowish; scaling on body above denuded in the specimens, but that on legs whitish. *Wings* (text-fig. 51) with a characteristic pattern in the form of a broadish, dull, smoky brownish, transverse band across middle and spot-like infuscations on cross veins and other veins, this medial, transverse band extending from apex of costal cell obliquely across to end of vein between third and fourth posterior cells on hind margin and occupying the medial parts of marginal and first submarginal cells, apical part of first basal cell, medial part of discoidal cell, basal half of third posterior cell and greater part of fourth posterior cell, grading on basal side imperceptibly into the subopaquely whitish or pale yellowish whitish costal cell, bases of marginal and first submarginal cells and basal two-thirds of first basal cell and also into the clear and more vitreous hyaline bases of discoidal and fourth posterior cells, the clear second basal cell and vitreous hyaline anal and axillary cells, the apical part of wings also hyaline; smoky brownish, spot-like infuscations (smaller than in *pterosticta*) present at common base of second and third veins, on apical cross veins of first and second basal cells, base of second submarginal cell, at apex of discoidal cell and to a certain extent also at base of third posterior cell; veins brownish, darker in infuscated region; basal comb poorly developed; second vein recurved at its end; base of vein between submarginal cells more or less bent at right angles to third vein and there provided with a short or slight stump; first posterior cell distinctly narrowed apically; middle cross vein at a little less than, at about, or a little more than, apical fourth of discoidal cell; the latter

somewhat acute apically; axillary lobe broadish, arcuately rounded; alula moderately developed; squamae dirty yellowish, dark-bordered, fringed with whitish hairs; halteres brownish, their knobs brownish to dark brownish above. *Head* with the interocular space on vertex in ♀ about, or a little less than, 3 times distance between outer margins of posterior ocelli of the rather smallish tubercle; frons slightly and very shallowly transversely depressed anteriorly; antennal joint 3 broadened knob-like basally, more rapidly below, more bulb-shaped basally; proboscis short, thick, stumpy, scarcely projecting beyond buccal cavity, its labellar lobes large, broad and fleshy and quite as long as base. *Legs*



TEXT-FIG 51. Wing of *Lomatia uniplaga* n. sp.

with 2 or 3 spines on anterior lower medial part of middle femora; hind ones with a row of about 4–6 spines on lower outer aspect from before middle and with a variable number, 10–15, irregularly disposed, small spines on outer upper part in apical half, of which at least 2 apical ones are stouter and longer.

From 2 ♀♀ in the South African Museum.

Length of body: about 8 mm.

Length of wing: about 8–8½ mm.

Locality: Karoo: Murraysburg Dist. (Mus. Exp., March 1931).

Easily recognizable by its wing-pattern and yellowish legs, the former character distinguishing it from all other species.

Lomatia marleyi n. sp.

Body black; labella of proboscis tending to be reddish brownish; legs with the apical parts of femora and the tibiae also reddish brownish, appearing even more yellowish brownish where scaling has been rubbed off. *Vestiture* with the hair on frons predominantly black, only that on each side at extreme apex pale sericeous yellowish; hair on sides of face, on genae, and on antennae below pale sericeous yellowish; that on antennae above, on inner aspect of joint 1 and a few intermixed ones on joint 2 below black; hair on thorax above, on sides, upper part of mesopleuron, sides of tergites 1–4 and to a certain extent also on each side basally of 7 pale sericeous yellowish; that on sides of thorax and on sides of tergites 3 and 4 appearing even more yellowish and with dis-

tinctly more whitish hair on sides of 1; two or three prealar, some postalar and some scutellar bristles black; fine, sparse, erect hairs on abdomen above gleaming very pale sericeous yellowish, the more bristly ones on tergite 7 however black; dense, tuft-like hairs on sides of tergites 5 and 6 black; bristly hairs on sides and across hind margin of tergite 7 and a few inconspicuous ones apically on sides of 3 and 4 also black or dark; hair on pleurae and venter whitish, that on the former more contrastingly whitish; genital brush of ♀ gleaming sericeous yellowish, but with a faint mauvish pink sheen; scaling on body above deep golden yellowish, more conspicuous across hind margin of tergite 1 and on sides of others; rest of scaling on abdomen above predominantly black; scaling on venter pale sericeous yellowish to whitish; flattened scaling and hairs on legs mainly whitish, that on upper parts of femora however more yellowish. *Wings* almost dimidiately infuscated, the dark chocolate brownish anterior infuscation extensive, occupying the base, costal cell, more or less basal two-thirds of marginal and first submarginal cells, entire first basal cell and predominantly also second basal and discoidal cells; distinct and conspicuous, spot-like infusions also present on apical cross veins of basal cells, at base of vein between submarginal cells, on apical cross vein of discoidal cell and at base of vein between discoidal and third posterior cells; rest of apical and hinder parts of wings greyish hyaline, the dark anterior part however more or less marked off from more hyaline parts; anal cell and extreme bases of posterior cells however slightly tinged, constituting a sort of transition zone between the infuscated and uninfuscated parts; veins dark blackish brown; basal comb wanting; first posterior cell slightly narrowed apically; middle cross vein at about apical fifth of discoidal cell; base of vein between submarginal cells bent obliquely to third vein, with a tendency for a short stump to be present at bend; axillary lobe and alula reduced, narrowish; squamae opaquely yellowish brownish, fringed with whitish hairs; halteres brownish, their knobs brownish above. *Head* with the occiput comparatively well developed; interocular space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli; frons only slightly longitudinally impressed anteriorly; antennal joint 3 much broadened at base, golf-driver-club-shaped basally; proboscis short, stumpy, stoutish, projecting only very slightly beyond buccal cavity, its labellar lobes broad, ovate and scarcely, or only a little, longer than base. *Legs* with 1 or 2 spines on lower inner medial part of middle femora; hind ones with 2 spines on outer lower apical part and 2 apically above; basal joint of front tarsi in ♀ with some longish, bristle-like spicules below in more or less apical half.

From a ♀ in the South African Museum.

Length of body: about 8 mm.

Length of wing: about 8 mm.

Locality: Natal: Kloof near Durban (Bell-Marley, Feb. 1915).

Easily recognized by its more or less dimidiately infuscated wings of which the dark chocolate brownish infuscation in anterior two-thirds is conspicuous

and more or less marked off from the more hyaline parts. It cannot be confused with the ♀ of *dimidiata* which has a less extensive and more distinctly marked off anterior infuscation, clearer discoidal cell, differently shaped third antennal joint, more extensive black hair on sides of abdomen, more whitish hair on body above and paler legs. The more extensive infuscation and spot-like infuscations in wings also distinguish it from *matabeleënsis*.

Lomatia sinuosa n. sp.

Body and legs black; tibiae however appearing slightly more brownish where the scaling has been rubbed off. *Vestiture* with the hair on frons anteriorly on each side, sides of face, antennae below and on genae sericeous or silvery whitish; hair on rest of frons, antennae above and a very few intermixed ones on antennal joint 2 below black; hair on thorax above, sides of tergites 1-4 and to a certain extent also on each side apically of 6 and basally of 7 sericeous whitish, that on sides of thorax in front of wings however with a slightly more straw-coloured sheen in certain lights; hair on pleurae and on venter sericeous whitish; two prealar bristles, some scutellar bristles, the dense, tuft-like, bristly hairs on sides of tergites 5 and 6 and the hairs on sides and across hind margin of 7 black; sparse, erect hairs discally on abdomen above whitish, but dark and blackish towards apex and on last tergite; genital brush of ♀ appearing dark; scaling on body above deep golden yellowish, denser across tergite 1 and on sides of the others, more brassy to sericeous yellowish towards apex of abdomen; scaling on venter more whitish; flattened scaling and hairs on legs snow-whitish. *Wings* tinged or diffused with yellowish at the base, in costal cell, in slightly more than basal halves of marginal and first submarginal cells, entire first basal cell and to a fainter extent also in second basal and discoidal cells, this infusion imperceptibly grading into the greyish hyaline apical and hinder parts, the extreme apical part and hind border of wings being the clearest; comparatively faint, spot-like infusions present on apical veins of basal cells, at base of vein between submarginal cells and at base of vein between discoidal and third posterior cells; veins brownish, becoming more yellowish towards base; basal comb wanting; second vein very characteristically, somewhat deeply, sinuate and recurved at its end; base of vein between submarginal cells bent almost at right angles to third vein and there provided with a short stump; first posterior cell slightly narrowed apically; middle cross vein at about, or a little more than, apical third of discoidal cell; the latter acute apically; axillary lobe and alula reduced and narrowish; squamae opaquely whitish, fringed with whitish hairs; halteres dirty yellowish, their knobs pale yellowish brownish. *Head* with the interocular space on vertex in ♀ appearing comparatively narrowish, about, or a little less than, 2 times distance between outer margins of posterior ocelli; frons slightly, but distinctly, depressed anteriorly; antennal joint 3 bulb-like basally; proboscis short, stumpy, scarcely projecting beyond buccal cavity, its labellar lobes broad, ovate, only a little shorter than base.

Legs with 1 spine on anterior lower medial part of middle femora; hind ones with 2 spines on lower outer apical aspect and 2 apically above.

From a ♀ in the British Museum.

Length of body: about 7 mm.

Length of wing: about 7 mm.

Locality: Natal: Weenen (Thomasset, March 1924).

Easily recognized by the deep kink and recurved apical part of second vein, which is much like that of *Tomomyza* or *Pantostomus*, and by the diffused yellowish brownish tinge in anterior basal two-thirds of wings. From *marleyi* it can at once be distinguished by the less demarcated and less dark infuscation, the apical sinuosity of second vein, the predominantly whitish hair on body above and more bulb-shaped base of antennal joint 3.

Lomatia lawrencei n. sp.

Body and legs black; tibiae appearing more dark reddish brown when scales have been rubbed off. *Vestiture* with the hair on frons in ♂ predominantly black, that on antennae above black in both sexes, but with a few intermixed black ones below also, especially in ♂; hair on sides of face and on genae sericeous whitish and that on frons in front in ♀ also with more sericeous whitish ones; hair on thorax above gleaming very pale sericeous yellowish to almost white in ♂, more distinctly sericeous yellowish to yellowish in ♀; that on pleurae sericeous whitish in both sexes, but contrasting more with that above in ♀; collar hairs dark and 2 black prealar bristles present; postalar and scutellar bristles sericeous yellowish to yellowish, more so in ♀; erect hairs on abdomen above longer, sparser and only very pale sericeous yellowish in ♂, denser, shorter and distinctly more yellowish in ♀, with a few intermixed blackish ones submedially on each side on hind margin of tergite 1; hair on sides of tergites 1-4 conspicuously white and shaggy in ♂, shorter in ♀, becoming slightly more yellowish on sides of 3 and 4 in ♀; tufts on sides of tergites 5-7 (or 8) black; hair on venter predominantly whitish, but longer in ♂; hair-like scaling on body above sparser, more whitish in ♂, dense and gleaming deep golden yellowish in ♀, that on abdomen above, especially in ♀, arranged across hind margins of tergites in comparatively broad and conspicuous bands, more evident on sides; rest of abdomen above with dense, black scaling; scaling on venter whitish in ♂, tinted slightly more sericeous yellowish in ♀; flattened scaling on legs snow-whitish. *Wings* with the greater apical and hinder parts greyish hyaline, the base, costal cell, greater part of first basal cell and to a certain extent also basal halves of marginal and first submarginal cells however faintly tinged or infused with dull, smoky brownish in ♂ and more distinctly or more intensely and conspicuously so in ♀, especially in the basal halves of marginal and first submarginal cells, and even to a certain extent also second basal cell, the wings in ♀ thus appearing more dimidiately infuscated; infusion however not well marked off, but imperceptibly grading into the greyish

hyaline parts, the latter in ♀ appearing less clear hyaline than in ♂; spot-like infusions present at base of second and third veins, on apical cross veins of basal cells and at bases of veins between submarginal cells and discoidal and third posterior cells respectively, fainter in ♂; veins very dark blackish brown; basal comb wanting; first posterior cell widely open, its sides however slightly narrowed apically; second vein normally bent up at its end; discoidal cell somewhat acute apically; axillary lobe and alula much reduced, the former narrowish; squamae opaquely blackish brown, fringed with white hairs; halteres dark brownish, their knobs brownish. *Head* with the interocular space in front of ocellar tubercle in ♂ very narrow, almost touching, only as broad as very narrow front ocellus; interocular space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli; frons shallowly depressed anteriorly, the middle part in ♂ being sparsely haired; antennae (text-fig. 52, *a*) with joint 3 characteristically broadened basally, the lower basal part prominently bulging, more or less golf-driver-club-shaped and with the slender part long; proboscis short, stumpy, scarcely projecting, its labellar lobes broad, ovate, quite as long as base. *Legs* with the fine hairs on femora, especially in ♂, well developed; middle femora with 1 spine in front; hind ones with 2 spines in apical outer lower aspect and at least 1 longish spine apically above; basal joint of front tarsi in ♀ with a few longish spicules below apically. *Hypopygium* of ♂ (text-fig. 52, *b*) showing a side view and a dorsal view of right beaked apical joint; outer apical angles of basal parts slightly projecting; dorsum of beaked apical joints with only very fine hair; basal strut shaped as shown, its hind margin darker, more chitinized.

From a ♂ and a ♀ in the South African Museum.

Length of body: about $5\frac{1}{2}$ –6 mm.

Length of wing: about 6–7 mm.

Locality. Swaziland: Mbabane Hlatikulu (Lawrence, Jan. 1939) (holotype). Eastern Transvaal: Nelspruit, near Barberton (Lawrence, Jan. 1939) (allotype).

Differs from *heterocoma* chiefly in having the base of antennal joint 3 more golf-driver-club-shaped, a darker infusion anteriorly in wings, darker veins, narrower axillary lobe, darker squamae and brownish halteral knobs. From the ♀ of *matabeleënsis* the ♀-allotype differs in having a more intense and darker infuscation in wings, darker squamae, brownish halteral knobs, darker tibiae, slightly deeper golden scaling above and a slightly longer slender part of antennal joint 3.



TEXT-FIG. 52. (*a*) Right antenna of ♂ *Lomatia lawrencei* n. sp. (from inner side). (*b*) Side view of hypopygium and dorsal view of right beaked apical joint of ♂ of same species.

Lomatia natalicola n. sp.

A ♀-specimen in the collections before me resembles the ♀ of *lawrencei* so closely that it may almost be considered as a variety of it. It, however, differs in certain characters which appear to be of specific value. The following characters seem to distinguish it from *lawrencei*: *Vestiture* with distinctly more numerous black hairs on antennae below, with more numerous black hairs on each side of frons anteriorly and without any trace of black, intermixed hairs submedially on each side across hind margin of tergite 1; bands of golden scaling on abdomen distinctly narrower and even on sides of tergites not occupying at least apical halves of hind margins as in *lawrencei*. *Head* with the interocular space on vertex in relation to ocellar tubercle comparatively broader, a little more than 2, nearly 3, times distance between outer margins of posterior ocelli, the ocellar tubercle relatively smaller; slender part of antennal joint 3 relatively shorter in relation to broadened golf-driver-club-shaped base, scarcely more than twice length of base. *Wings* with the brownish infusion in anterior part less intense; base of vein between submarginal cells tending to bend more at right angles and to have a distinct, short stump at the bend; squamae distinctly paler, more dirty yellowish, not brownish. *Legs* with the tibiae at least slightly paler, more brownish; basal joint of front tarsi with more numerous, more distinct, longish, bristle-like spicules below.

From a ♀ in the British Museum.

Length of body: about 5 mm.

Length of wing: about $5\frac{1}{2}$ mm.

Locality: Natal: Weenen (Thomasset, March 1924).

GROUP II

Representatives of this second group differ from those placed in Group I in having a distinctly and comparatively longer and distinctly more slender proboscis (cf. text-fig. 53) of which the apical part, or its labellar lobes, usually project distinctly or even considerably beyond apex of buccal cavity or to at least level of apices of first antennal joints and of which the labellar lobes are distinctly narrower, more elongate and pointed apically and only rarely broadish and, if so, always much, or considerably, shorter than basal part of proboscis and with both the latter and the labellar lobes without any or with much finer, indistinct, or at least less coarse, spinules below. The face too in members of this group usually appears more subconical or prominent apically when viewed from the side.

Section 1

Species with the wings more extensively infuscated or dimidiately infuscated to a variable extent and usually with spot-like infusions on the cross veins.

Lomatia infuscata Bezz.(Bezzi, p. 114, *Ann. S. Afr. Mus.*, xviii, 1921.)

The unique ♀-type on which the description of this species is based, is in the South African Museum. As was stated under *acutangula* var. *transvaalensis*, Bezzi confused *infuscata* with two ♀♀ of this variety in the British Museum (p. 145, *The Bombyliidae of the Ethiopian Region*, 1924). The chief characters of *infuscata* s. str., as based on the type-specimen, are as follows:

Body black; antennal joint 3, labellar lobes of proboscis and legs tending to be more toffee- or castaneous brownish. *Vestiture* with the hair on front part of frons, outer lower parts of antennae, sides of face and on genae gleaming golden yellowish; that on basal part of frons, antennae above and densely on antennal joint 1 below black; hair on thorax and abdomen predominantly deep golden yellowish, even that on pleurae not visibly paler than above; prealar, postalar and scutellar bristles yellowish (two prealar bristles on right side in type however black); distinct, intermixed, black, bristly hairs also present on sides of tergites 3–7, across hind margin of 7 and even 1 or 2 on sides apically of 2; scaling on body above, especially across hind margins of tergites, golden yellow; rest of scaling on abdomen above black; flattened scaling on legs dull yellowish whitish to creamy on upper parts of femora, gleaming dark brownish or blackish on tibiae, especially hind ones. *Wings* tinged brownish throughout, the axillary lobe being the less tinted, darker, more coffee-brownish anteriorly at base, in costal cell, marginal, greater part of first submarginal and entire first basal cells, becoming less dark towards apex and hind margin; surface rather shining and iridescent; veins chocolate brownish and with a tendency for general infusion to be also darker along course of veins; basal comb not well developed; first posterior cell only very slightly narrowed apically; discoidal cell rather elongate, very much longer than first posterior cell, its apex acute; middle cross vein at a little more than apical fourth of discoidal cell; axillary lobe narrowish and alula much reduced; squamae opaquely brownish, fringed with yellowish hairs; halteres yellowish, their knobs pale yellowish. *Head* with the interocular space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli; frons subfoveately depressed anteriorly, the yellowish hair occupying most of depression; face somewhat, but distinctly, convexly raised medially; antennal joint 3 gradually broadened basally, the base bulb-shaped or club-like; proboscis (text-fig. 53) about 2 mm. long, projecting a good distance beyond buccal cavity, slender, its labellar lobes (L) elongate, narrowish and pointed apically, but very much shorter than basal part, the latter more or less longitudinally striate, without visible or conspicuous spinules. *Legs* with 2 spines on lower outer



TEXT-FIG. 53. Side and ventral views of proboscis of ♀ *Lomatia infuscata* Bezz.

apical part and 2 apical ones above on hind femora; basal joint of front tarsi with longish, bristle-like spicules below in apical part, these however considerably shorter than joint itself.

Length of body: about 10 mm.

Length of wing: about 11 mm.

Locality: Natal: Pinetown (Bowker, June 1883).

Easily recognized by its shining brownish, more or less uniformly, tinged wings and golden yellowish hair.

Lomatia brunnitincta n. sp.

Body black; labellar lobes of proboscis and sometimes tibiae tending to be more brownish or dark castaneous brownish. *Vestiture* with the hair on front part of frons, numerous intermixed ones on antennal joint 1 below, that on sides of face and on genae whitish, straw-coloured to straw-coloured yellowish; hair on basal part of frons, antennae above and numerous intermixed ones or tufts on antennae below black; hair on thorax gleaming straw-coloured whitish or yellowish on sides in front of wings, more sericeous whitish on pleurae; prealar, postalar and scutellar bristles pale yellowish to pale reddish yellowish; hair discally on abdomen above sericeous whitish, that on sides of tergite 1 whitish; dense hair on sides of tergites 2-4 sometimes more sericeous yellowish in certain lights; tufts on sides of tergites 5-8 and hairs across hind margin of 8 black; hairs on venter predominantly sericeous whitish; pale scaling on body above gleaming pale sericeous yellowish to pale brassy yellowish, arranged as narrowish bands across hind margins of tergites, but more evident on sides; scaling on sides of head sericeous or silvery whitish; scaling on legs mainly whitish, that on outer apical part of femora especially hind ones, and on lower parts of tibiae dark or greyish brownish. *Wings* tinged brownish or faintly reddish brownish throughout, the base and costal cell however more sub-opaquely yellowish and basal halves of marginal and first submarginal cells and entire first basal cell more distinctly darker brownish, but with these darker parts imperceptibly grading into the less darkly tinged parts; veins dark reddish brown, becoming slightly paler towards base; basal comb rudimentary; first posterior cell slightly narrowed apically; middle cross vein at about apical fourth or a little less of discoidal cell; the latter acute apically; axillary lobe narrow and alula much reduced; squamae subopaquely whitish, yellowish-bordered, fringed with whitish hairs; halteres pale yellowish, their knobs very pale. *Head* with the interocular space on vertex in ♂ as broad as tubercle, but in front of latter a little narrower than tubercle; frons shallowly depressed anteriorly, the pale hairs anteriorly occupying most of this depression; face medially not distinctly convexly raised; antennae (text-fig. 54, *a*) with joint 3 broadened club-like basally, slightly more rapidly below; proboscis projecting much beyond buccal cavity, about 1-2 mm. long, slender, its labellar lobes short, ovate and broadish as in species placed in Group I, but considerably

shorter than shining basal part and with distinct spinules present only on labella. *Legs* with 2 or 3 spines on outer medial part of middle femora; hind ones with about 5-7 spines on outer lower part from just before middle, with 2 or 3 apical ones above and numerous, somewhat irregularly disposed spinelets on outer upper aspect. *Hypopygium* (text-fig. 54, *b*) with the outer apical angle of basal parts not very prominently projecting.

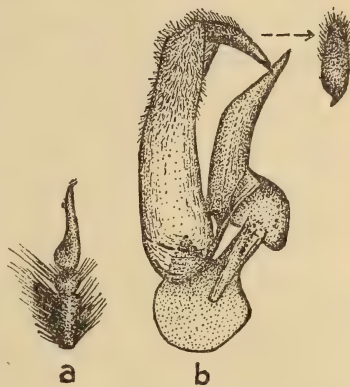
From 3 ♂♂ (type in the Transvaal Museum).

Length of body: about $7\frac{1}{2}$ - $9\frac{1}{2}$ mm.

Length of wing: about 7 - $9\frac{1}{2}$ mm.

Locality: Transvaal: Rustenburg (Jenkins, Dec. 1908) (type); Pretoria (Swierstra, 21 Nov. 1915); and 1 specimen without locality label, but probably also from Pretoria.

From *infuscata*, which this species superficially resembles, it may at once be distinguished by the paler, more straw-coloured to whitish hair, black tufts which are present only on sides of tergites 5-7, not distinctly convex face, shorter, more ovate and broadish labellar lobes and the more numerous spines on hind femora.



TEXT-FIG. 54. (a) Right antenna of ♂ *Lomatia brunnitincta* n. sp. (from inner side). (b) Side view of hypopygium and dorsal view of right beaked apical joint of ♂ of same species.

Lomatia fucatipennis n. sp.

Body black; apices of third antennal joints yellowish; proboscis and legs very dark blackish brown, the tibiae scarcely paler than femora. *Vestiture* with the hair on almost entire frons, numerous ones on ocellar tubercle, that on antennae below, sides of face and on genae sericeous whitish; some hairs on vertex, a few intermixed ones at base of frons and those on antennae above black; hair on body above predominantly pale sericeous yellowish to yellowish, that on pleurae, especially mesopleuron, and on sides of abdomen in basal part appearing more whitish; three prealar bristles and dense, conspicuous, shaggy tufts on sides of tergites 2-7 black; scaling on thorax above brassy yellowish to pale golden; that on abdomen above composed of sericeous yellowish and black ones, the former concentrated as bands across hind margins of tergites, denser and broader across 1 and on sides of others; scaling on venter gleaming more whitish; that on legs greyish whitish, appearing more greyish yellowish on upper surfaces of femora and on tibiae in certain lights. *Wings* tinged pale yellowish brownish or yellowish greyish throughout, the anterior costal half, including base, alula, costal cell, more than basal halves of marginal and first submarginal cells, entire first basal cell, however, distinctly darker yellowish brownish; veins brown; basal comb reduced; first posterior cell slightly narrowed apically, much shorter than discoidal cell; the latter subtruncate apically; middle cross vein at a little less than apical fifth to half-way between

apical fifth and apical sixth of discoidal cell; axillary lobe and alula normally reduced for this genus, the former narrowish; squamae opaquely dirty whitish, dark-bordered, fringed with white hairs; knobs of halteres very pale yellowish. *Head* with the interocular space on vertex in ♀ a little less than 2 times distance between outer margins of posterior ocelli; frons depressed anteriorly; face convex medially; antennal joint 3 rather long, broadened bulb-like basally, slightly more rapidly below, its slender part longish, almost 3 times as long as base; proboscis longish, about 3 mm. long, projecting much beyond buccal cavity and antennae, not visibly spinulated, its labellar lobes elongate, narrow and pointed apically. *Legs* with 3 or 4 spines anteriorly on middle femora; hind ones with about 4 spines from about middle to apex on outer lower part and at least 1 stoutish subapical one on outer upper aspect; basal joint of front tarsi in ♀ without any longish spicules below.

From a ♀ in the Transvaal Museum.

Length of body: about 8 mm.

Length of wing: about 9 mm.

Locality: Transvaal: Woodbine Ville (Swierstra, Dec. 1914).

Easily recognized by its uniformly dusky wings, predominantly whitish hair on head, three black prealar bristles, dense black tufts on sides of abdomen and longish proboscis. It can only be confused with ♀♀ of *pulchriceps* Lw. and some varieties of it, but may at once be distinguished by the predominantly white hair on head, absence of black hair on antennae below, more narrowed first posterior cell, more numerous spines on femora and absence of longish, bristly spicules on basal joint of front tarsi below. From *brunnitincta* it differs in having black prealar bristles, whitish hair on antennae below, black tufts also on sides of tergites 2 and 3, and a longer proboscis and much longer labella.

Lomatia pictipennis (Wied.)

(Wiedemann, p. 302, *Aussereurop. Zweifl. Ins.*, i, 1828, as *Anthrax*; Macquart, p. 62, *Dipt. Exot.*, ii, 1840, as *Anthrax*; Loew, p. 205 and tab. ii, fig. 12, *Dipt. Faun. Südaf.*, i, 1860; Bezzi, p. 113, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 145, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Syn. = *centralis* Macquart (nec tab. xiv, fig. 2), p. 82, *Dipt. Exot.*, ii, 1840, as *Anisotamia*.)

(Syn. = *aurata* Macquart, p. 111, *Dipt. Exot., Suppl.* i, 1846, as *Anthrax*.)

(Syn. = *fasciolaris* Walker, p. 144, *Trans. Ent. Soc. Lond.*, iv, 1857.)

A very characteristic South African species which, on account of its characteristic and striking wing-pattern, cannot be confused with any other species. It is characterized as follows:

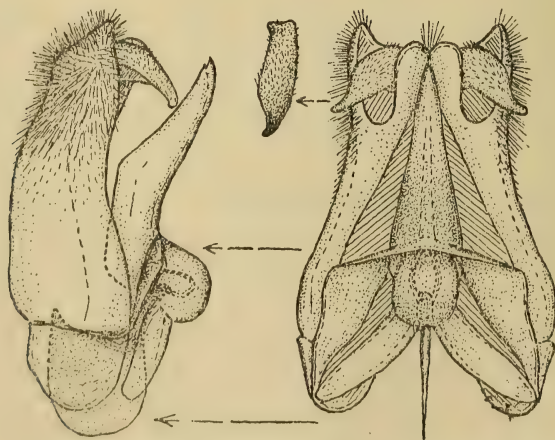
Body mainly black; hind margins of sternites rather conspicuously pallid or whitish; proboscis castaneous to dark brownish; tibiae (when denuded) also

more or less castaneous to dark reddish brownish. *Vestiture* with the hair on greater part or entire frons and antennae above and below sericeous yellowish to deep golden yellowish, that on sides of face and on genae more sericeous whitish to pale sericeous yellowish; hairs on ocellar tubercle in both sexes and at base of frons in ♂ black; hair on body above predominantly golden yellowish to deep yellowish, being slightly deeper yellowish in front of wings on each side and very deep golden, orange or even reddish golden on sides of tergites 3-6; prealar, postalar and scutellar bristles yellowish to reddish yellow; hair on pleurae and on venter gleaming whitish to sericeous whitish, contrasting much with that on body above; hair on abdomen above with a few intermixed black ones on sides of tergite 6 and a fairly dense tuft on sides of 7 and bristly ones across hind margin of 8 in ♂ black, but without any, or with only a few, intermixed black ones on sides of 6 in ♀ though numerous black ones are also present across hind margin of last tergite (7) in ♀; fine, hair-like scaling on body above golden yellowish to deep reddish golden, arranged in broad bands across hind margins of tergites, but occupying almost entire tergal surface on sides; rest of abdomen above with dull black hair-like scaling; scaling on sides of head behind eyes more sericeous yellowish to whitish; scaling on venter sericeous whitish to silvery whitish; flattened scaling on legs mainly greyish whitish, but tinted slightly more dull yellowish whitish to distinctly yellowish on outer upper parts of femora and upper parts of tibiae, especially hind ones. *Wings* very characteristically infuscated (more or less as depicted by Loew in loc. cit., tab. fig. 12), with a pattern consisting of three more or less well defined transverse bands of which the broad preapical one and somewhat broken-up basal one are dark brownish, chocolate-brownish to purplish brownish and the broad medial one between them is contrastingly subopaquely yellowish or yellowish whitish; the former or broad, dark, preapical band extending broadly across and including almost the apical half of marginal cell to at least apical half of first posterior cell, leaving only extreme apical part of marginal cell, apical fourth of first submarginal cell, more than apical half of second submarginal cell and sometimes extreme apex of first posterior cell clear and more or less subopaquely whitish; the broken-up dark basal band evident as a dark infusion in basal part of first basal cell, in anterior apical part of second basal cell and in apical half of anal cell and along veins between the latter and the axillary and fourth posterior cells in this region; the pale medial band between these two extending broadly across basal parts of marginal and first submarginal cells, middle part of first basal cell, more than basal half of discoidal cell to bases of third and fourth posterior cells and also continued in costal cell to include the base and greater part of second basal cell and also distinctly continued along course of third vein to near its end; axillary lobe and basal half of anal cell also more or less clear greyish hyaline and with the hind border also tending to be more or less greyish; middle parts of cells in the dark preapical band sometimes showing clearer areas to a variable extent; infuscation on apical cross vein of second basal cell spot-like; first main vein and parts of other

veins in the yellowish parts reddish to reddish brown, the rest of the veins darker or blackish brown; basal comb poorly developed; first posterior cell distinctly narrowed apically; discoidal cell subacute to acute apically; middle cross vein at about, or a little more or a little less than, apical fourth of discoidal cell; axillary lobe broader than anal cell and alula fairly well developed; squamae opaquely whitish, fringed with dense, creamy to yellowish hairs; knobs of halteres very pale, almost whitish. *Head* with the interocular space on vertex in ♂ as broad as ocellar tubercle, but a little narrower for some distance in front of tubercle; interocular space on vertex in ♀ about, or a little less than, 2 times distance between outer margins of posterior ocelli; frons not or scarcely depressed anteriorly and if so then only in ♀, its hair dense anteriorly, leaving only middle line bare; face not or only very feebly convex medially; antennae (text-fig. 55) with joint 3 broadened bulb- or club-like basally and more or less apical half very slender and styliform, usually more slender than in most species; proboscis projecting distinctly beyond buccal cavity to at least about level of antennal joints 1 and 2, its labellar lobes elongate, narrow and pointed apically. *Legs* without or with 1 short spine on anterior medial part and sometimes a few minute spinelets on outer upper part of front femora; middle femora usually with about 3 conspicuous spines on anterior lower part; hind ones with about 3-6 spines on outer lower part from about, or just before, middle to apex, numerous irregularly disposed spinelets on outer upper part, 3 or 4 longish spines apically above and usually with 1 longish spine on inner apical part; basal joint of front tarsi in ♀ with longer and more bristle-like spicules below towards apex, but with these considerably shorter than joint itself. *Hypopygium* of ♂ (text-fig. 56) with the outer apical angle of basal



TEXT-FIG. 55.
Right antenna
of ♂ *Lomatia*
pictipennis Wied.
(from inner
side).



TEXT-FIG. 56. Side and ventral views of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia pictipennis* Wied.

parts distinctly angularly projecting; beaked apical joints shaped as shown in dorsal view between the two figures; basal strut rather broad, more or less chopper-shaped.

In the Commonwealth Institute and in the British, Albany, Natal, South African and Transvaal Museums.

Length of body: about $6\frac{1}{2}$ –13 mm.

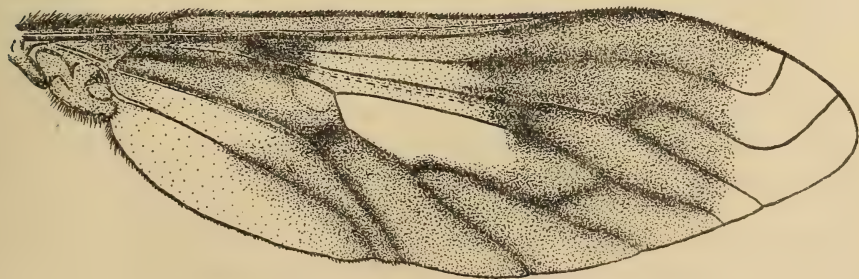
Length of wing: about 7–15 mm.

Locality: Eastern Cape, Natal, Zululand, Orange Free State, Transvaal, Swaziland, and Southern Rhodesia.

This species is very variable in size and also in the intensity of the pattern on the wings. Apart from the characteristic wing-pattern, it can also be distinguished from other yellow-haired species by the shape of the third antennal joint, absence of extensive black hairs on basal part of frons and the presence of black hairs only on sides of last two tergites. According to Macquart's descriptions both *Anisotamia centralis* (p. 82, loc. cit.) and *Anthrax aurata* (p. 111, loc. cit.) are without doubt synonyms of *pictipennis*. There is also a strong suspicion that Walker's species *fasciolaris* from Natal (p. 144, loc. cit.) is synonymous with Wiedemann's species.

Lomatia phaenostigma n. sp.

Body black; tibiae mainly yellowish, pale yellowish brownish to reddish brown, very much paler than dark or blackish brown femora and dark tarsi. *Vestiture* with the hair on at least front half of frons, antennae below, sides of face and on genae whitish to sericeous whitish; hairs on basal part of frons, ocellar tubercle and on antennae above black; hair on thorax above pale straw-coloured yellowish, that in front of wings showing more sericeous yellowish; prealar, postalar and scutellar bristles pale yellowish to reddish yellow; hair on pleurae, venter and to a certain extent on sides of tergites, especially 1–3, conspicuously sericeous or snow-whitish, but with blackish brown to black, intermixed bristly ones or tufts on sides of 3–7 (or 8) and also across hind margin of last tergite; fine hairs across hind margin of last tergite in ♀ sericeous yellowish; pale scaling on body above sericeous yellowish to pale brassy



TEXT-FIG. 57. Wing of ♀ *Lomatia phaenostigma* n. sp.

yellowish in ♀, but paler in ♂, that on venter silvery whitish; flattened scaling on femora predominantly cretaceous whitish, becoming dull yellowish along outer upper parts and on tibiae. *Wings* (text-fig. 57) rather elongate, more pointed apically in ♂ than in ♀, with a characteristic pattern, consisting of a smoky brownish to dark blackish brown or even slightly purplish brown infuscation more or less divided into a broadish, transverse, preapical band and a transverse basal band by a transverse, abbreviated, medial, paler, subopaquely yellowish to yellowish whitish band; the darkly infuscated basal band in ♀ well developed, extending from base of first basal cell across entire second basal cell to include apical half of anal cell, entire fourth posterior cell and continuous along hind border across posterior cells and apical part of discoidal cell, but in ♂ ill-defined and only distinctly represented in basal half of first basal cell and very faintly or not at all in apical part of anal cell and in fourth posterior cell, second basal cell in ♂ being clearer than in ♀ and with the infusion across posterior cells in ♂ also less extensive and sometimes fainter; second or preapical dark band in ♀ broad, but narrower and less extensive in ♂; apical part of wings clear, with a slight subopaquely whitish sheen in certain lights, the area less extensive in ♀, only extreme apex of marginal cell, a little less than apical fourth of first submarginal cell, more than apical half of second submarginal cell and extreme apex of first posterior cell being clear, whereas in ♂ more or less apical third of marginal and first submarginal cells, entire second submarginal and greater parts of first and second posterior cells sometimes clear like greater part of second basal cell and anal and axillary cells (in ♀ only axillary lobe and basal half of anal cell clear); the subopaquely yellowish, abbreviated, medial band between the darker bands continuous with the subopaquely yellowish costal cell and base, becoming paler in discoidal cell where it forms an elongate, clear (in ♀ almost subopaquely whitish), conspicuous eye-spot in more or less basal two-thirds of discoidal cell; a small greyish white spot apically in second basal cell also present, especially in ♀; veins dark blackish brown, slightly paler in the paler medial parts and with the dark infusions in wings sometimes appearing darker along veins; basal comb very poorly developed; first posterior cell much narrowed apically; second vein sometimes very much recurved apically in ♂; middle cross vein usually at about between apical third to fourth or fifth of discoidal cell; the latter acute apically; squamae opaquely whitish, fringed with white hairs; knobs of halteres very pale. *Head* with the interocular space on vertex in ♂ as broad as ocellar tubercle, narrower in front of latter, in ♀ about 2 or a little more times distance between outer margins of posterior ocelli; frons shallowly depressed anteriorly in ♀, its hair occupying most of this depression; face not convexly raised medially; antennal joint 3 broadened club- or bulb-like basally; proboscis projecting beyond buccal cavity to at least level of base of antennal joint 3, shining, somewhat obliquely striate, its labellar lobes elongate, narrow, pointed apically and with distinct fine hairs below on basal part; palps very short, very much shorter than antennal joint 3. *Legs* with more numerous spines on femora in ♂ and stouter and more numerous spicules

on tibiae in ♂; front femora with about 6 or 7 irregularly disposed spines on anterior lower part and 3 or 4 on posterior or outer part in ♂, without any or with only a few minute spinelets in ♀; middle femora in ♂ with about 9-10 very well developed, longish spines on anterior lower part and about 7-8 on posterior apical part and with only about 2 or 3 medially in front in ♀; hind ones with about 9-10 spines on lower outer part in ♂ and 4 or 5 in ♀ from before middle to apex, with 2-4 apical spines above and some irregularly disposed spinelets above in both sexes; basal joint of front tarsi in ♀ with bristle-like spicules below in apical part which are however much shorter than joint itself. *Hypopygium* of ♂ (text-fig. 58) with the outer apical angle of basal parts rather prominent and hairs on latter confined to apical part; beaked apical joints narrowish, appearing elongate; lateral struts rather broad, tongue-like; basal strut with a transverse ledge basally when viewed from above or below.



TEXT-FIG. 58.
Side view of
hypopygium
and dorsal view
of right beaked
apical joint of
♂ *Lomatia phaenostigma* n. sp.

From 1 ♂ and 2 ♀♀ (types and paratype in the South African Museum).

Length of body: about $9\frac{1}{2}$ -11 mm.

Length of wing: about 11-13 mm.

Locality: Moordenaars Karoo in Laingsburg Div. (Mus. Exp., March 1937) (allotype). Great Karoo: Murraysburg Dist. (Mus. Exp., March 1931) (holotype).

Lomatia mesoleuca n. sp.

This species is very close to *phaenostigma*, but differs from the latter in the following characters:



TEXT-FIG. 59. Side
view of hypopy-
gium and dorsal
view of right
beaked apical joint
of ♂ *Lomatia meso-
leuca* n. sp.

Vestiture with the hair on antennae below predominantly or entirely black; that on thorax above and on sides of abdomen tinted more distinctly sericeous yellowish and also with black intermixed hairs on sides of tergite 2 in addition to those on sides of 3-7. *Wings* almost without a distinct, subopaquely yellowish, medial, transverse band, the anterior border and costal cell being unicolorous with the preapical band and infusion posteriorly across posterior cells, with only the clear, elongate eye-spot in discoidal cell being conspicuous in middle of wings; second basal cell, anal and axillary cells and even fourth posterior cell in both sexes also more or less clear as in ♂ of *phaenostigma*; middle cross vein varying in position from a little more than apical fifth to apical fifth and apical sixth of discoidal cell; the latter usually less sharply acute apically; apical part of second vein tending to be more constantly recurved apically. *Legs* with about 2-6 spines on outer lower part and about 2-5 on

posterior lower part and some small spinelets above on front femora; middle ones with about 5-8 spines on anterior lower part and 2-5 on posterior part; hind femora with about 5-8 on lower outer part. *Hypopygium* of ♂ as shown in outline (text-fig. 59), differs from that of *phaenostigma* in having relatively broader, more leaf-shaped beaked apical joints and in having the lateral struts distinctly longer, narrower and not tongue-shaped.

From 6 ♂♂ and 5 ♀♀ (types and paratypes in the South African Museum).

Length of body: about 10-14 mm.

Length of wing: about 10-15½ mm.

Locality: Namaqualand: Bowesdorp (Mus. Exp., Sept. 1941) (types); Kamieskroon (Mus. Exp., Sept. 1930); Kamieskroon-Springbok (Mus. Exp., Oct. 1939); Klip Vlei near Garies (Mus. Exp., Nov. 1931); Outiep near Garies (du Toit, Sept. 1953); O'Okiep (Lightfoot, Sept. 1890).

This like the preceding species is easily recognized by the pattern in the wings and especially the elongate eye-spot in the discoidal cell.

Lomatia longitudinalis Lw.

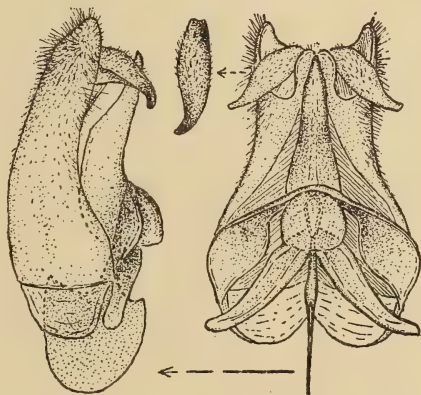
(Loew, p. 204 and tab. ii, fig. 11, *Dipt. Faun. Südaf.*, i, 1860;

Bezzi, p. 113, *Ann. S. Afr. Mus.*, xviii, 1921.)

This species, as based on two ♂♂ in the South African Museum, is characterized as follows:

Body mainly black; rather broad hind margins of sternites pallid; proboscis dark castaneous brownish; legs mainly yellowish or very pale yellowish brownish, only extreme apices of femora and apical parts of tarsi dark or blackish. *Vestiture* with hair on ocellar tubercle, base of frons, antennae above and numerous intermixed ones below blackish brown to black; that on greater part of frons whitish to sericeous yellowish and that on sides of face, on genae and intermixed ones on antennae below gleaming sericeous whitish; hair on thorax above sericeous yellowish to pale golden yellowish, that on sides in front of wings and in mesopleural tuft deeper yellowish to even more reddish golden; prealar, postalar and scutellar bristles yellowish to reddish yellow; hair on pleurae, pectus and venter more contrastingly whitish to sericeous whitish; that on abdomen above pale sericeous yellowish, that on sides basally sericeous whitish to yellowish, but sometimes even distinctly golden yellowish, becoming even deeper yellowish posteriorly; some intermixed, bristly hairs on sides of tergites 6 and 7 and across hind margin of 8 black; fine, pale, hair-like scaling on body above sericeous yellowish to golden yellowish, that across hind margins of tergites more in form of broadish bands; scaling on venter whitish; scaling on legs whitish on hinder and outer lower surfaces, more creamy yellowish on upper parts of femora and on tibiae. *Wings* with a yellowish brownish infusion (depicted by Loew in tab. ii, fig. 11, loc. cit.) which occupies base, costal cell, more or less basal three-quarters of marginal cell, basal two-thirds of first sub-marginal cell, entire first basal cell and extending as a slightly less brownish,

more yellowish greyish, infusion across all the posterior cells to include apical parts of anal and axillary cells, leaving the apical part, greater part of discoidal cell, second basal cell, basal half of anal cell and greater part of axillary lobe clearer; more greyish hyaline, but with a slightly whitish subopacity; the darker or brownish infused parts imperceptibly merging into clearer apical part, also more evident along course of veins posteriorly; alular part and basal halves of marginal and first submarginal cells appearing slightly more sub-opaquely yellowish in certain lights; first, third and fifth main veins yellowish reddish, the rest more or less reddish brown, becoming darker in apical and hinder parts; basal comb moderately developed; first posterior cell shortish, much narrowed apically, more or less spindle-shaped; middle cross vein at about between apical fifth and sixth of discoidal cell; the latter elongate, subacute apically; axillary lobe broad, well developed, broadly rounded posteriorly; alula fairly well developed; squamae opaquely whitish, fringed with white hairs; knobs of halteres almost white. *Head* with the space on vertex in ♂ as wide as ocellar tubercle and in front of latter narrow, only about as broad as front part of tubercle or a little wider than front ocellus; frons only very shallowly or scarcely transversely depressed anteriorly, its hair leaving a medial triangular space bare; face not distinctly convexly raised medially; antennal joint 3 bulb- or club-like basally, at least its apical half slender; proboscis long, projecting beyond buccal cavity to level of antennal joint 2, its labellar lobes elongate, narrow and pointed apically; palps subequal in length to antennal joint 3. *Legs* with about 3-5 spines on medial lower outer part of front femora; middle ones with about 5-7 longish and short spines on lower anterior part; hind femora with about 7-9 shortish spines along lower outer part from near base to apex, with 3 or 4 on inner lower apical part, with 2-4 apical ones above and also with irregularly disposed spinelets along upper outer part. *Hypopygium* (text-fig. 60) with the outer apical angles of basal parts prominent, angularly projecting; beaked apical joints shaped as shown in figures.



TEXT-FIG. 60. Side and ventral views of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia longitudinalis* Lw.

In the South African Museum.

Length of body: about 14-15 mm.

Length of wing: about 15-16 mm.

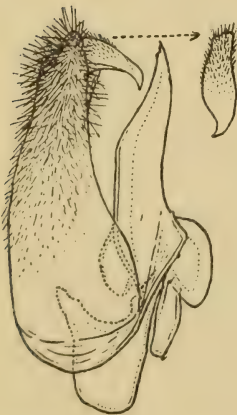
Locality: Western Cape Province and also Eastern Cape Province (Loew).

Recognized by its entirely yellowish legs, yellowish brownish infuscated wings in which the discoidal, second basal and basal half of anal cells are more or less clear and the presence of only a few intermixed black hairs on last few tergites.

Lomatia bevisii n. sp.

A large and bulky species very near *longitudinalis* in its type of wing-pattern, but differing in the following respects:

Legs with the femora much darker, dark reddish or castaneous brownish to blackish brown; tibiae, though much paler than femora, more reddish brownish than yellowish. *Vestiture* with the hairs on ocellar tubercle predominantly pale sericeous yellowish; hair on frons, face, genae and also antennae above and below very pale sericeous yellowish or whitish; that on thorax above and on sides much paler, paler sericeous yellowish or more distinctly sericeous whitish, not so obviously contrasting with the more distinctly sericeous whitish ones on pleurae and venter; hair on abdomen and on sides of tergites also much paler, gleaming very pale sericeous yellowish, with slightly more numerous black, intermixed, bristly ones on sides of tergites 5-8 and not only on sides of 6-8 as in *longitudinalis*. *Wings* distinctly broader, the infuscated parts however similar in pattern, but slightly less extensive, also distinctly paler, more yellowish, the clear apical part more hyaline and slightly more extensive, the greater part of first posterior cell and apical parts of the other posterior cells along hind border being clear like greater part of discoidal, second basal, anal and axillary cells; veins paler throughout; first posterior cell, though also narrowed apically, much less so; discoidal cell relatively longer, more acute apically, the vein between it and second posterior cell very much longer, S-curved and not straight; middle cross vein at about a little less than apical fifth of discoidal cell. *Head* with antennal joint 3 relatively longer, its slender part also relatively longer and more distinctly yellowish apically; proboscis with some distinct fine hairs below and more distinct spinules on labellar lobes. *Hypopygium* as shown in outline in text-fig. 61, characterized by the presence of much and fairly long hairs towards apical parts of basal parts, the inner apical angles of latter distinctly less produced than in *longitudinalis*; lateral struts relatively shorter and basal strut (side view) differently shaped.



TEXT-FIG. 61. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia bevisii* n. sp.

From a ♂ in the South African Museum.

Length of body: about $16\frac{1}{2}$ mm.

Length of wing: about $19\frac{1}{2}$ mm.

Locality: Natal: Braemar (Bevis, 23 March 1927).

Lomatia apicalis n. sp.

Body black; femora very dark or black, the tibiae slightly more yellowish brownish. *Vestiture* with the hair

on basal half of frons or, in ♂, to a little beyond middle of frons, those on antennae above and densely on their inner lower aspect, sometimes a few intermixed ones in collar anteriorly, dense ones on sides of tergites 5-7 (or 8) and a few across middle of hind margin of last sternite in ♀ black; rest of hair on body very pale sericeous whitish or yellowish, that on sides of frons in front, on sides of face, pleurae, sides of tergite 1 and base of venter contrastingly sericeous whitish; hair on sides of thorax and in mesopleural tuft, on sides of abdomen and also intermixed ones among posterior black tufts, on body above and on hinder part of venter appearing more pale sericeous yellowish in certain lights; curled and hair-like scaling on body above, across hind margins of tergites and on venter very pale sericeous yellowish in ♀, more whitish or silvery in ♂; scaling on legs greyish whitish to white, more dull yellowish on upper and outer surfaces. *Wings* rather darkly and extensively infuscated yellowish brownish to brown, the infuscation extending apically to much beyond end of costal cell and cubital fork, more or less irregularly straight across to apex of first posterior cell, leaving the apical part of wings uninfuscated and subopaquely whitish; a little more than basal two-thirds of discoidal cell contrastingly uninfuscated and subopaquely yellowish; apex of second basal cell, anal and axillary cells, greater part of fourth posterior cell clearer and more or less middle parts of the other posterior cells also clearer; alular part yellowish; veins brownish; discoidal cell narrowish, elongate, much longer than either first or fourth posterior cells, its apical vein comparatively short, substraight or only feebly S-curved; second and third posterior cells subequal or equal in width apically; axillary lobe narrowish; squamae whitish, white-fringed; knobs of halteres pale ivory yellowish. *Head* with the interocular space in ♂ at narrowest part in front of ocellar tubercle a little narrower than, or about as broad as, tubercle; space on vertex in ♀ nearly 2 times width of tubercle; antennal joint 3 with its stylar part slender, long, quite as long or longer than broad club-like basal part; labellar lobes of proboscis only a little shorter than basal part, elongate, pointed apically and projecting much beyond buccal cavity. *Legs* with 3 or 4 spines on anterior middle part of middle femora and 5 or 6 on outer lower part of hind ones as well as some spines above apically; basal joint of front tarsi in ♀ without longish, bristle-like spicules below.

From 1 ♂ and 2 ♀♀ (types in the South African Museum and paratype in Durban Museum).

Length of body: about 9-12 mm.

Length of wing: about 11-14 mm.

Locality: Southern Rhodesia: Zimbabwe (Bevis, 28 April 1948) (types); Zimbabwe (Bevis, 29 April 1948).

Easily recognized by the darkly infuscated wings which have only the apex clear and the basal two-thirds of discoidal cell spot-like, subopaquely yellowish white. Its wing-pattern resembles that of *phaenostigma*, *mesoleuca*, *longitudinalis*

and related species, but more especially that of *mesoleuca*. From the latter it may be distinguished by having black hairs only on sides of tergites 5-7 (or 8), more black ones on antennae below, apical part of marginal cell more extensively clear, darker tibiae, etc. From *longitudinalis* it differs in having dark legs, a broader interocular space in front of ocellar tubercle in ♂, a more marked-off apical clear area in wings and much darker infuscation.

Lomatia fulva n. sp.

A very characteristic, dark-winged and yellowish-haired species characterized as follows:

Body mainly dark, the integument above with slight, dull, dark bluish reflections; legs very dark blackish brown, but appearing pale, due to dense, buff yellowish or ochreous scaling. *Vestiture* with the hair on anterior half of frons in ♂, entire frons in ♀, densely on antennae below and sides of face in ♀, intermixed hairs among black ones on antennae below in ♂, dense hair on entire thorax (including prealar, postalar and scutellar bristles) and abdomen above and in mesopleural and propleural tufts golden yellow to deep golden, that on sides of abdomen posteriorly or posterior half and sometimes to a lesser extent in upper anterior part of mesopleural tuft more orange fulvous or deep orange golden; hair on sides of face in ♂, on genal part in both sexes, in lower hinder part of mesopleural tuft, on prosternal part, lower parts of pleurae, small metapleural tuft, on coxae, hairs on femora and on venter whitish, becoming whiter on coxae and venter; some hairs on antennae above in ♀, those on antennae above and very dense and tuft-like ones below in ♂, that on basal half of frons in ♂, on ocellar tubercle in both sexes, bristly hairs across hinder parts of last two tergites in ♂ and on last tergite in ♀ black; scaling on sides behind eyes pale golden; sparse, hair-like, curly scaling on thorax and scutellum above and in narrow bands across hind margins of tergites (denser and longer on sides) golden; scaling on coxae, those fairly densely across hind margins of sternites and on bases of femora below white. *Wings* almost entirely infuscated dark brownish or chocolate-brownish, with slight purplish brownish reflections, the costal cell and basal half of first submarginal cell more yellowish, becoming clearer or less tinged at apex of wings and in ♀ even subopaquely clear, the greater parts of axillary and anal cells and middle parts of posterior cells also less infuscated, clearer, with the second basal cell and basal three-quarters of discoidal cell also distinctly paler than general infuscation, more subopaquely yellowish or yellowish whitish; prediscoidal spot whitish; alula yellowish; basal comb black; veins dark reddish brown; second vein much and roundly recurved apically; first posterior cell narrowed apically, much shorter than discoidal cell; apical vein of latter slightly S-curved; squamae subopaquely whitish, yellow-fringed; knobs of halteres almost white. *Head* with the interocular space in front of ocellar tubercle in ♂ about as broad as narrow front part of tubercle or about $1\frac{1}{2}$ times width of front ocellus; space on vertex in ♀ a very little more than 2 times distance between outer margins of posterior

ocelli; frons slightly depressed in front, the middle of depression being free of hairs; antennal joint 3 broadened bulb-like basally, more rapidly narrowed below, ending in a long, slender part, much longer than broadened base, but in ♂ slightly longer than in ♀; proboscis projecting beyond buccal cavity, its labellar lobes elongate, a little shorter than basal part; palps a little longer than antennal joint 3. *Legs* with 1 or 2 small spines on inner part of front femora; middle ones with about 3–5 spines on anterior lower part; hind femora with about 4–6 spines on outer lower part, a few smaller ones on inner aspect and a few small ones in an upper outer and inner row which become longer apically; basal joint of front tarsi in ♀ with some longish spicules below.

From 3 ♂♂ and 1 ♀ (types and paratypes in the South African Museum).

Length of body: about 11–12½ mm.

Length of wing: about 11½–12 mm.

Locality: West Cape Mountains: Wit River Valley in Bain's Kloof near Wellington (Mus. Exp., Dec. 1949).

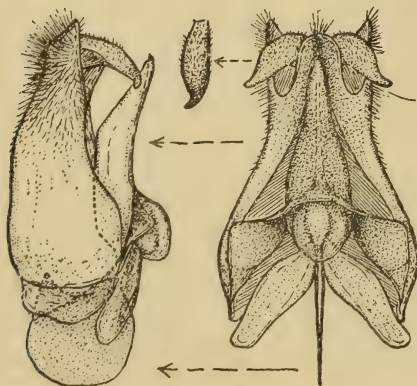
The only species among the preceding ones with which this species may be confused is *mesoleuca* which has similarly coloured wings. It, however, differs from the latter in having distinctly deeper golden hair above, no black ones on sides of abdomen, less contrasting white hair on body below, shorter bulb-like base of antennal joint 3 and an apically less recurved second vein.

Lomatia monticola n. sp.

Body black; apical part or extreme apices of third antennal joints yellowish or yellowish brown; labella of proboscis dark piceous or reddish brown; tibiae dark, but very dark castaneous brownish to reddish brownish when denuded, the legs otherwise very dark or blackish. *Vestiture* with the hair on ocellar tubercle, base of frons, antennae above and in ♂ and some ♀♀ densely on inner part below black; rest of hair on frons in ♂ and at extreme front of frons in ♀ sericeous whitish, the rest of pale ones on frons in some ♀♀ sometimes sericeous yellowish; that on face and genae and on outer lower part of antennae sericeous whitish, but those on inner lower part of antennae in some ♀♀ sometimes gleaming dark golden brownish; hair on thorax above and on sides in front of wings pale sericeous yellowish to pale golden in ♂ to golden or even deep golden yellowish or even deep orange in some ♀♀, but slightly deeper yellowish in front of wings in both sexes; prealar, postalar and scutellar bristles yellowish; hair on propleurae, prosternum, in hinder and lower parts of mesopleural tuft, pleurae and venter contrastingly snow-whitish; that on abdomen above pale sericeous yellowish to golden in ♂, golden to very deep golden or even fulvous orange in ♀, that on sides towards posterior part deeper yellowish or orange fulvous and in ♀ sometimes even reddish fulvous or very deep orange golden; distinct, black, intermixed, bristly hairs only on sides of tergites 6–8 in ♂ and on sides and across hind margin of 7 in ♀; scaling on body above sericeous yellowish or brassy, sometimes more golden in ♀, especially on sides of

posterior tergites; scaling on venter silvery or sericeous whitish; that on legs dull greyish whitish on femora below and yellowish above, dull greyish yellowish on tibiae. *Wings* with an infuscation and pattern very similar to that of the *mesoleuca* and *longitudinalis*-group of species, consisting of a yellowish brownish or brownish infusion extending to opposite apex of costal cell or a little beyond it and across bases of second submarginal and first posterior cells, apical part of discoidal cell, base of second posterior cell and then across the posterior cells where it is more evident along course of the veins, leaving apical part of wings, middle apical parts of posterior cells, greater part of discoidal cell, second basal cell and the entire or greater part of anal and axillary cells clear, more hyaline; apex of wings showing a slight milky subopacity and with the infused anterior half appearing slightly more subopaquely yellowish than brownish in costal cell and basal halves of marginal and first submarginal cells; first and sixth veins more or less reddish, the rest darker reddish brown to blackish brown; basal comb moderately developed, black; first posterior cell spindle-shaped, much narrowed apically; middle cross vein at about apical fifth, or a little less or even a little more, of discoidal cell; the latter very elongate, subacute apically, its apical vein long, S-curved; axillary lobe and alula moderately developed; squamae opaquely yellowish whitish, yellowish-bordered, fringed with snow-white hairs; knobs of halteres almost white. *Head* with the eyes on vertex in ♂ separated by width of ocellar tubercle, but the space in front of latter very narrow, only a little broader than front ocellus or about as broad as front part of tubercle; interocular space on vertex in ♀ a little more than 2 times distance between outer margins of posterior ocelli; frons slightly depressed anteriorly in ♀ and in both sexes with the hair anteriorly absent from middle part; face not distinctly convex medially; antennal joint 3 bulb-shaped basally, its apical half or more slender; proboscis about 2-3 mm. long, projecting beyond buccal

cavity to about level of base of antennal joint 3, its labellar lobes elongate, narrow, bluntly pointed apically and much longer than antennal joint 3. *Legs* with about 2-3 smallish spines medially on both outer lower and anterior lower parts of front femora; middle ones with about 4-9 well-developed spines on anterior lower part, 2 or 3 of which are very long and with 2-4 short spines on posterior lower part; hind ones with about 5-10 spines from before middle to apex on outer lower part and with a row of about 9-12 smaller, irregularly disposed ones along hinder lower part from near base and also with numerous spinelets on outer



TEXT-FIG. 62. Side and ventral views of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia monticola* n. sp.

upper surface and with 4 or 5 longer spines apically above; basal joint of front tarsi in ♀ with some longish, bristle-like spicules apically below. *Hypopygium* of ♂ (text-fig. 62) with the outer apical angles of basal parts angularly prominent, the hairs towards apices of basal parts tending to be conspicuous; lateral struts somewhat elongate.

From 35 ♂♂ and 28 ♀♀ (types and paratypes in the South African Museum and a paratype in the British Museum).

Length of body: about 10–14 mm.

Length of wing: about $10\frac{1}{2}$ –14 mm.

Locality: South-western Cape mountains: upper sources of the Olifants River in the Ceres Div. (Mus. Exp., Dec. 1949) (types); Matroosberg (3,500–4,000 ft. alt.) in the Ceres Div. (Lightfoot, Jan. 1917); Ceres (Turner, Dec. 1920).

Though having a similar type of wing-infuscation and clear areas, this species differs from *longitudinalis* and *bévisii* in being slightly smaller, in having much darker tibiae, more golden yellowish or fulvous hair on body above, more contrastingly white hair in mesopleural tuft, black ones only on sides of posterior tergites and in having the clear areas in wings more vitreous hyaline. From *fulva* which it also superficially resembles in the colour of the hair it may however at once be distinguished by the distinctly less darkly infuscated wings, a larger clear apical part in wings, white hairs on frons anteriorly and in part below antennae, white squamal fringe and whiter hair on pleurae. This species has a very characteristic habit of sitting on flowers with its abdomen pointing straight up.

Lomatia sericosoma n. sp.

A single ♀-specimen in the South African Museum is apparently very near *monticola*, from which it however differs in the following respects:

Vestiture with the hair on frons predominantly sericeous whitish, there being much fewer black ones basally; hair on body above predominantly sericeous whitish, only very slightly tinted pale sericeous yellowish on thorax in front of wing-bases; that on sides of abdomen sericeous or snow-whitish like that on body below, with however some intermixed black hairs on sides of tergites 6 and 7; fine scaling on abdomen above more whitish; flattened scaling on legs also predominantly whitish. *Wings* very similarly infuscated, but longer in relation to body; middle cross vein only a little less than apical fourth of discoidal cell; the latter also acute apically, its apical vein also longish and S-curved; first posterior cell however distinctly longer, less narrowed apically; axillary lobe and alula slightly more reduced. *Head* with the labellar lobes of proboscis, though also narrow and pointed, distinctly and relatively shorter than in *monticola* and slightly shorter than antennal joint 3. *Legs* with fewer spines on femora, the front ones with only 1 spine in front and about 3 on outer upper apical part; middle ones with only about 4 spines on anterior lower part and

none posteriorly; hind femora with only about 7 on outer lower part and none, or only 3 or 4, in apical part on inner lower part.

Length of body: about $11\frac{1}{4}$ mm.

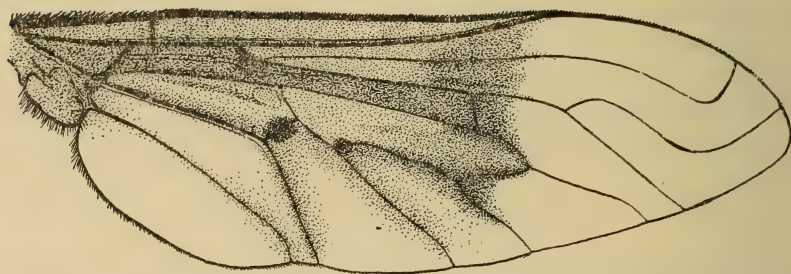
Length of wing: about $13\frac{1}{2}$ mm.

Locality: East Griqualand: Saamloop (Bell-Marley, 21 March 1932).

This ♀ cannot be taken as that of *bevisii*. From the ♂ of the latter it differs in being very much smaller, in having entirely dark legs, more sericeous whitish hair on abdomen above, narrower wings, less broad axillary and alular lobes and much shorter labella.

Lomatia chraecoptera n. sp.

Body black; apices or apical parts on third antennal joints yellowish or yellowish brownish; proboscis dark castaneous or piceous brownish, especially labellar lobes; tibiae yellowish to yellowish brownish or even sometimes reddish brownish to dark reddish brown. *Vestiture* with the hair on ocellar tubercle, base of frons, antennae above and in ♂ on inner lower parts of antennae black; hair on greater anterior part of frons, outer lower parts of antennae in ♂ and



TEXT-FIG. 63. Wing of ♂ *Lomatia chraecoptera* n. sp.

entirely below in ♀, on sides of face and on genae sericeous whitish; hair on body above and on front coxae gleaming pale sericeous yellowish to creamy yellowish, sometimes appearing slightly more yellowish on sides and on front part of thorax and more whitish on sides of abdomen basally; hair on hinder part of mesopleural tuft, on pleurae and venter somewhat contrastingly sericeous whitish; thoracic and scutellar bristles entirely pale yellowish; intermixed bristly hairs or tufts on sides of tergites 5-7 (or 8) and across hind margin of last one black; scaling on body above sericeous yellowish to brassy yellowish, especially in ♀; that on venter whitish; scaling on legs predominantly dull yellowish to greyish yellowish. *Wings* (text-fig. 63) more or less dimidiately infuscated, this subopaquely pale yellowish brownish to coffee-brownish infusion occupying more or less anterior two-thirds, including second basal and discoidal cells and extending to opposite level of apex of costal cell and then straight across to base of second posterior cell, becoming fainter in posterior cells where

it is more evident as infusions along veins; apical part of infusion, evident as an indistinct transverse band, and also entire first basal cell darker, more coffee-brownish; apical part of wings beyond infusion, including greater part of second posterior cell, axillary lobe and to a great extent anal cell and also hind border of wings, clear, vitreous hyaline; alular part subopaquely yellowish; a spot-like infusion present on apical cross vein of second basal cell and a smaller one at base of third posterior cell; veins yellowish to reddish brownish, darker in more darkly infused parts; basal comb moderately developed; first posterior cell longer than in the *longitudinalis*-group, distinctly narrowed apically; middle cross vein at about a very little more, or a little less, than apical fourth of discoidal cell; the latter acute apically, its apical vein substraight, slightly S-curved; axillary lobe and alula, especially in ♂, fairly well developed; squamae opaquely whitish, yellowish-bordered, white-fringed; knobs of halteres very pale. *Head* with the interocular space on vertex in ♂ as narrow as narrow ocellar tubercle and in front of latter only about as broad as front ocellus; interocular space on vertex in ♀ a little more than 2 times distance between outer margins of posterior ocelli; frons slightly transversely depressed anteriorly in ♀, not or scarcely in ♂, the small medial area in front bare; face not convexly prominent; antennal joint 3 bulb- or onion-like basally and with at least its apical half slender; proboscis long, projecting beyond buccal cavity to level of antennal joint 2, its labellar lobes elongate, narrow and pointed apically. *Legs* without any spines on front femora; middle ones with about 2-4 spines anteriorly and none posteriorly; hind femora with about 3-6 spines on outer lower part from about middle, with only 2 or 3 small ones apically on posterior lower part and about 3 or 4 apical ones above; basal joint of front tarsi in ♀ without any long or conspicuous, bristle-like spicules below. *Hypopygium* of ♂ (text-fig. 64) with rather conspicuous punctures towards apices of basal parts and also with distinct and conspicuous hairs in this region; rest of structures shaped as shown in outline.



TEXT-FIG. 64. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia chraecopectera* n. sp.

From 2 ♂♂ and 4 ♀♀ (types and paratypes in the South African Museum and a paratype in the British Museum).

Length of body: about 8-11½ mm.

Length of wing: about 9½-13 mm.

Locality: Zululand: Mfongosi (Jones, March 1916) (types); Mfongosi (Jones, April-May 1934). Natal: Weenen (Thomasset, April 1924).

Easily recognized by the yellowish brownish infusion in wings which occupies more or less the anterior basal two-thirds, including second basal and discoidal cells.

Lomatia hemichroa n. sp.

Very closely resembles *chraeoptera* from which it may be distinguished as follows:

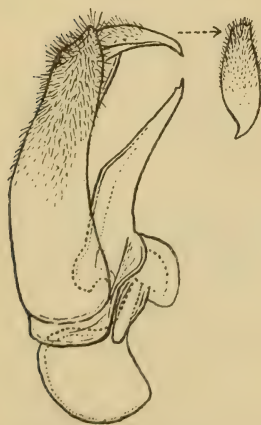
Wings comparatively shorter, broader, with almost an identical type of infuscation, this yellowish brown infusion occupying more or less the same area, though appearing slightly less in longitudinal extent owing to the relatively broader and shorter wings, being also sharply marked off from apical hyaline part, but distinctly more uniform in colour; first basal cell and apical part, from apex of costal cell straight across to hind border, not being distinctly darker than rest of infusion as in *chraeoptera*; the infusion, though becoming fainter posteriorly, also occupying third and fourth posterior cells and anal and axillary cells, these latter cells thus being distinctly more tinged than in case of *chraeoptera*; basal comb distinctly more reduced; base of vein between submarginal cells distinctly bent more obliquely or even at right angles to third vein; middle cross vein at from a little more than apical third to apical fourth of discoidal cell; the latter itself relatively much shorter and broader, its apex distinctly truncate or subtruncate, its apical vein straight and oblique. *Vestiture* without any black hairs on antennae below even in ♂; black intermixed hairs on sides of tergites 5 and 6 in ♂ fewer and without any in ♀; hair on sides of thorax and sides of abdomen in ♀ sometimes deeper yellowish to deep golden; transverse bands of scaling on abdomen of ♀ at least distinctly broader than in *chraeoptera* and occupying almost entire tergal surfaces. *Head* with the interocular space in ♂ in front of ocellar tubercle distinctly broader, broader than front ocellus; space on vertex in ♀ about 2 times distance between outer margins of posterior

ocelli; face medially in front slightly more convex or subconical; slender part of antennal joint 3 distinctly shorter; proboscis more slender, slightly shorter. *Legs* with the tibiae darker, darker reddish brownish to blackish; middle femora with only 1 or 2 spines and hind ones with about 2 on outer lower apical part; basal joint of front tarsi in ♀ with some longish, bristle-like spicules below, distinctly longer than the normal ones in ♀ of *chraeoptera*. *Hypopygium* of ♂ shown in outline (text-fig. 65), differing from that of *chraeoptera* in having relatively shorter lateral struts and a basal strut which in side view is much shorter and differently shaped.

From 1 ♂ and 2 ♀♀ (holotype in the South African Museum, allotype in the Transvaal Museum and a paratype in the Deutsches Entomologisches Institut).

Length of body: about 8-8½ mm.

Length of wing: about 8-8½ mm.



TEXT-FIG. 65. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia hemichroa* n. sp.

Locality: Transvaal: Moorddrift (Swierstra, Oct. 1909) (allotype); Magalieskraal, 60 km. NW. of Pretoria (Lingnau, 27 Jan. 1926). Holotype without locality-label, but without doubt also from the Transvaal.

Lomatia semiclara n. sp.

A unique ♂-specimen in the collections resembles both *chraecoptera* and *hemichroa* very closely as regards its wing-infuscation. Compared with these two species it however differs in the following respects:

Wings with the yellowish brownish infusion almost identical, also occupying more or less basal two-thirds, but agreeing more with that of *hemichroa* in being more extensive and also present in third and fourth posterior cells and also in anal and axillary cells, the latter two cells especially not so clear as in *chraecoptera*; apical margin of infusion however slightly darker, sub-band-like as in latter species; clear apical part of wings slightly more greyish hyaline, not so vitreous hyaline as in the other two species; basal comb also rudimentary; base of second submarginal cell acute as in *chraecoptera*; middle cross vein at about between apical third and apical fourth of discoidal cell; the latter acute apically as in *chraecoptera*, its apical vein also slightly sinuous. *Vestiture* on body above more distinctly yellowish than in ♂♂ of the other two species; sides of abdomen and hind margin of last tergite without any dark or black intermixed hairs; hair on pleurae and venter less contrastingly whitish. *Head* with the interocular space in ♂ in front of ocellar tubercle much broader than in *chraecoptera* and even slightly broader than in *hemichroa*; proboscis fairly long, about 2 mm. long, its labellar lobes remarkably long, longer than antennal joint 3, much longer than in other two species and both these and base of proboscis with distinct spinules below. *Legs* with the tibiae as dark as femora, with about 2 spines anteriorly on middle femora and about 4 spines on outer lower part of hind ones. *Hypopygium* as shown in outline (text-fig. 66), with the outer apical angle of basal parts slightly more angularly prominent than in either *chraecoptera* or *hemichroa*; basal strut from side much like that of former, but distinctly shorter and narrower.



TEXT-FIG. 66. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia semiclara* n. sp.

From a ♂ in the British Museum.

Length of body: about 10 mm.

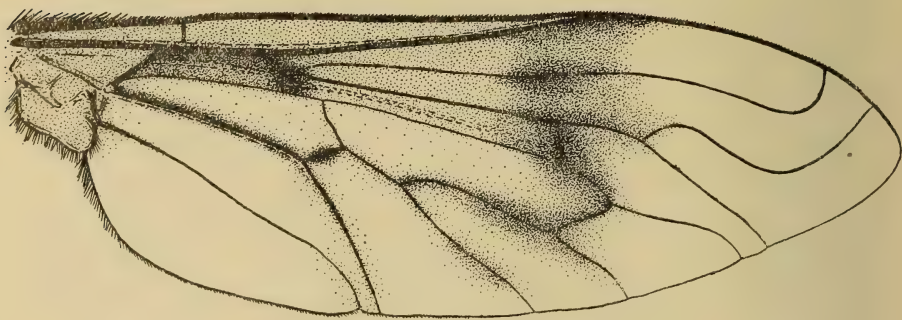
Length of wing: about 10 mm.

Locality: Natal: Weenen (Turner, 1-22 Jan. 1927).

Lomatia pseudofasciata n. sp.

Body black; apices of third antennal joints yellowish; proboscis, especially labellar lobes, and tibiae (when denuded) appearing dark reddish brown or

dark piceous brownish. *Vestiture* with the hair on entire frons and antennae above and below sericeous yellowish to pale golden yellowish; hair on sides of face and on genae more sericeous whitish, without any or with only a few intermixed dark or brownish ones on ocellar tubercle; hair on body above predominantly sericeous yellowish to golden yellowish; that on sides of abdomen distinctly deeper golden to deep orange golden from sides of tergites 3 or 4 to apex; hair on thorax above in ♂ dense, velvety in appearance; that on sides of thorax in both sexes also appearing deeper sericeous yellowish; hair on propleural part also pale to deeper sericeous yellowish; that in hinder part of mesopleural tuft and on pleurae and venter, especially basally, distinctly more whitish or straw-coloured than above, but not very contrastingly whitish; thoracic and scutellar bristles entirely yellowish; distinct intermixed or sparse tufts of dark blackish brown bristly hairs present on sides of tergites 6-8 and across hind margin of 8 in ♂, without any visible dark ones on sides of abdomen in ♀, but only with some or a few intermixed dark hairs across hind margin of last tergite; scaling behind eyes gleaming pale sericeous yellowish to whitish; that on body above sericeous yellowish to golden yellowish, arranged in broadish bands across apical halves of tergites, broader and on entire tergal surfaces on sides; rest of tergal surfaces discally with black scaling; scaling on venter dense, especially on sides, and more sericeous whitish; that on legs predominantly dull greyish yellowish to slightly ochreous yellowish, especially on upper



TEXT-FIG. 67. Wing of ♂ *Lomatia pseudofasciata* n. sp.

surfaces, but appearing more greyish whitish on lower parts and posteriorly. *Wings* (text-fig. 67) with a fairly characteristic pattern, consisting of a sub-opaquely yellowish infusion at base and in costal cell, in slightly more than basal halves of marginal and first submarginal cells and entire first basal cell, extending apically across wings from opposite apex of costal cell to apical part of discoidal cell in form of a distinct, somewhat darker brownish, jagged, irregular, preapical band, in which the dark brownish is more evident and pronounced along the veins; narrowish yellowish brownish infusions also present along veins

between discoidal and second and third posterior cells and usually also on veins between second, third and fourth posterior cells; second basal and discoidal cells more or less clear or feebly subopaquely yellowish whitish; axillary and anal cells, greater part of hind border across posterior cells and apical part of wings clear to vitreous hyaline; veins dark reddish brownish, darker apically and in darkly infuscated part, paler in more yellowish part; a spot-like infusion present at common base of second and third veins and on apical cross vein of second basal cell; basal comb moderately developed; first posterior cell spindle-shaped, much narrowed apically; middle cross vein at about from between a little more than apical fifth to a little less than apical fifth of discoidal cell; the latter subacute to nearly subtruncate apically, its apical vein slightly oblique, only feebly sinuate; axillary lobe and alula fairly well developed; squamae subopaquely whitish, yellow-bordered, fringed with yellowish to deep yellowish hairs; knobs of halteres very pale. *Head* with the interocular space on vertex in ♂ as wide as ocellar tubercle, the space in front of tubercle narrow, about as broad as narrow front part of tubercle; interocular space on vertex in ♀ relatively narrow, usually less than 2 times distance between outer margins of posterior ocelli (in one ♀ about 2 times); frons not depressed anteriorly in ♂, scarcely or only very slightly in ♀, the dense hair anteriorly leaving only a small medial area bare; face very slightly convex medially; antennal joint 3 broadened club- or bulb-like basally, its apical half at least slender, the extreme apex sometimes slightly flattened; proboscis long, projecting beyond buccal cavity to at least level of antennal joint 2, with some fine, longish hairs below, its labellar lobes long, pointed apically, covered with rather conspicuous spinules. *Legs* without any or with 1 spine below on front femora; middle ones with about 2-4 spines on anterior lower part; hind femora with about 5-9 spines on outer lower part from near base, with numerous irregularly disposed spinelets along outer upper and upper part and with 2-4 longer apical ones above; basal joint of front tarsi in ♀ without any longish, bristle-like spicules below. *Hypopygium* of ♂ (text-fig. 68) with the outer apical angles of basal parts somewhat angularly produced, the hairs on apical part fairly dense and conspicuous; basal strut, when viewed from side, not deeply or angularly incised on its antero-dorsal margin near base.

From 1 ♂ and 5 ♀♀ (types in the Transvaal Museum and paratypes in the South African Museum).

Length of body: about 12-14½ mm.

Length of wing: about 13-16 mm.

Locality: Southern Rhodesia: Bulawayo (Stevenson, 20 March 1924) (holotype); Bulawayo (Stevenson, 8 Feb. 1924) (allotype); Bulawayo (Stevenson, 29 March



TEXT-FIG. 68. Sideview of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatiapseudofasciata* n. sp.

1927); Saw Mills (Stevenson, 1924); Hillside (Stevenson and Swinburne, 4 March 1927); and 1 ♀-paratype without locality-label.

Apart from its fairly characteristic type of wing-infuscation, this species is easily recognized by the deep yellow hair, absence of black hairs on sides of abdomen in ♀, and by the relatively narrowish interocular space in ♀.

Lomatia grahami n. sp.

A unique ♀-specimen resembles the ♀ of *pseudofasciata* so closely in most respects that it may almost be considered as a southern variety of the Rhodesian species. In view of the fact that species of *Lomatia* show great similarity and that the ♂ of this form is not represented, the few distinct differences between it and the ♀ of *pseudofasciata* are provisionally considered as of separate specific value. From the ♀ of the latter species it differs in the following respects: *Legs* with the tibiae and bases of tarsi very much paler, pale yellowish brownish; front femora with some small spinelets on outer upper apical part; middle femora also with about 4 spines anteriorly; hind ones with about 7 spines on outer lower part; basal joint of front tarsi in ♀ also without any longish spicules below. *Wings*, though identically infuscated, comparatively narrower; second vein distinctly less sinuous in apical part just before apical bend; first posterior cell distinctly less spindle-shaped, more broadly open, its apical width being quite as broad as length of middle cross vein whereas in *pseudofasciata* the width is very much less than length of middle cross vein; middle cross vein itself at about only a very little less than apical fifth of discoidal cell; the latter a little more acute apically; squamae with the fringe paler, more creamy. *Vestiture* with the hair on body above paler, more sericeous yellowish; that on sides of abdomen distinctly very much paler, not orange yellowish; that basally more whitish; hair in hinder part of mesopleural tuft, on pleurae and venter distinctly more contrastingly sericeous to snow-whitish, not straw-coloured whitish; hair on frons, antennae below and face distinctly more snow-whitish; scaling on body above more pale sericeous yellowish, not golden; that on legs also slightly more whitish. *Head* with the interocular space on vertex in ♂ about 2 times distance between outer margins of posterior ocelli; slender part of antennal joint 3 comparatively shorter and the broadened basal part longer; proboscis slightly longer and its labellar lobes very much longer than antennal joint 3; frons apparently slightly more depressed anteriorly than in ♀ of preceding species.

From a ♀ in the South African Museum.

Length of body: about 14 mm.

Length of wing: about 15 mm.

Locality: North-eastern Karoo: Dordrecht (Graham, Feb. 1892).

Lomatia asaphodesma Hesse(Hesse, p. 394, *South African Animal Life*, ii, 1955.)

Very similar to both *pseudofasciata* and *grahami* in its wing-pattern and the subopaquely yellowish brownish infusion and very similar clear vitreous hyaline parts in the wings. From the former it however differs in the following respects: *Vestiture* with the hair on body above in ♂ distinctly much paler, more whitish or pale sericeous yellowish and even in ♀ more whitish or straw-coloured; hair on greater part of frons, antennae below, face and genae usually conspicuously sericeous whitish; that in hinder part of mesopleural tuft, on pleurae and venter more snow-whitish; hair on sides of abdomen with more numerous intermixed black ones on sides of tergites 2 (or 3) to 7 (or 8); scaling on body above paler, more sericeous or pale brassy yellowish, the transverse bands on abdomen above slightly narrower. *Wings* narrower; middle cross vein at about from just before apical fifth to nearly or about apical seventh or eighth of discoidal cell; the latter also slightly more acute apically. *Head* with the interocular space in ♂ in front of ocellar tubercle a little broader, only slightly narrower than tubercle; space on vertex in ♀ also a little narrower than 2 times distance between outer margins of posterior ocelli; proboscis similar, also with fine hairs below. *Legs* with the tibiae usually tending to be distinctly paler, more yellowish; front femora sometimes with 1 or 2 spines below; middle ones with about 3 or 4 (sometimes 6 or 7) spines anteriorly below; hind femora with about 6–9 spines below from near base and also with numerous spinelets on outer upper part. From the ♀ of *grahami* this species differs in having distinct black hairs on sides of tergites 4 (or 5)–7 in ♀, a more spindle-shaped first posterior cell which is more narrowed apically, a slightly shorter proboscis, shorter labellar lobes and less contrasting yellowish tibiae.

The *hypopygium* of ♂ is like that of *pseudofasciata*, but differs in having slightly longer lateral struts and the antero-dorsal part of basal strut not rounded, but distinctly more angularly produced in side view.

From 4 ♂♂ and 1 ♀ (types in the Commonwealth Institute and paratypes in the Zoological Institute of the University of Lund and in the South African Museum).

Length of body: about $11\frac{1}{2}$ –14 mm.

Length of wing: about 13–15 mm.

Locality: Natal: National Park (Ogilvie and Mackie, March 1932) (types); Royal National Park (Brinck and Rudebeck, 7–11 April 1951). Basutoland: Mokhotlong (Bevis, 2 Feb. 1939); Mamalapi Mtn. (Guillarmod, 31 Dec. 1948).

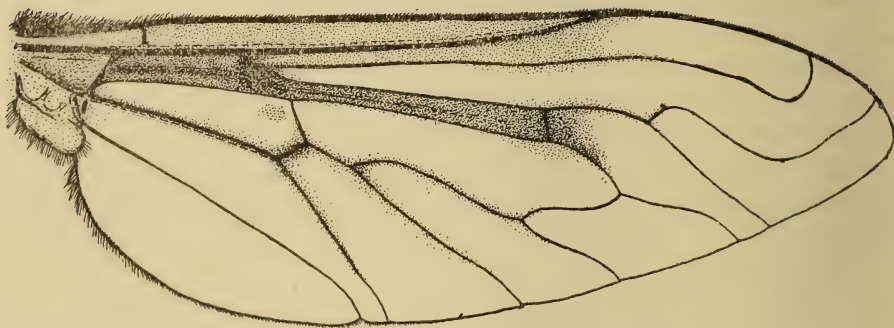
The ♂-paratype and a ♀ from Basutoland differ from the typical form in having more yellowish hair on antennae below and more spines on middle femora.

Lomatia mollivestis n. sp.

(Syn. = *liturata* Bezzi (nec Loew), p. 113, *Ann. S. Afr. Mus.*, xviii, 1921.)

(Syn. = *gigantea* Bezzi (nec loc. Nyasaland, p. 614, *Trans. Ent. Soc. Lond.*, 1911), p. 80, *Broteria* (Ser. Zool.), xx, fasc. ii, 1922.)

Body mainly black; hind margins of sternites rather conspicuously pallid; apical parts of antennae yellowish; proboscis dark castaneous or piceous brownish; femora very dark blackish brown to black; tibiae dark reddish brown or even paler, yellowish brownish. *Vestiture* with the hair on ocellar tubercle, some basally on frons, that on antennae above and in ♂ usually a few or some intermixed ones below black; hair on greater part of frons and on antennae below gleaming sericeous yellowish; hair on inner lower part of antennae sometimes with slightly golden or golden brownish gleams; hair on sides of face and on genae sericeous whitish; that on body above predominantly creamy yellowish to pale sericeous yellowish, appearing soft and velvety and with distinct sericeous to golden gleams in certain lights; thoracic and scutellar bristles very pale yellowish; hair on sides of abdomen becoming longer and more shaggy posteriorly, almost white basally, more sericeous yellowish to golden or ochreous yellowish or even orange golden towards apex, especially in ♀, and with intermixed black bristly ones on sides of tergites 5-7 (or 8); hair on pleurae, sides of tergite 1 and on venter more distinctly whitish than above, though not contrasting very much; scaling above pale sericeous yellowish, that across hind margins of tergites dense and with the individual hair-like scales arranged transversely, appearing felt-like; scaling on venter more whitish;



TEXT-FIG. 69. Wing of ♂ *Lomatia mollivestis* n. sp.

that on legs greyish whitish, appearing dull greyish yellowish on upper outer surfaces of femora and on tibiae. *Wings* (text-fig. 69) with a fairly characteristic pattern, consisting of a pale subopaquely yellowish, yellowish, to pale yellowish brownish infusion at base, in costal cell and in basal half of marginal cell, and a more brownish infusion in entire first basal cell and extreme base of first posterior cell and narrow yellowish or pale yellowish brownish infusions along

the veins between second basal, anal and fourth posterior cells and between discoidal and first, second, third and fourth posterior cells and to a lesser extent along basal parts of veins bounding third and fourth posterior cells; basal half of first submarginal cell almost clear and vitreous hyaline like apical part of wings beyond apex of costal cell, second basal and discoidal cells, posterior cells and anal and axillary cells; extreme base of wings blackish brown; first vein, those at extreme base and basal half of fifth vein yellowish to pale yellowish reddish, the rest of veins darker reddish brown to blackish brown; basal comb dark, moderately developed; base of vein between submarginal cells sometimes bent down almost at right angles and with an indication of a stump at this bend; first posterior cell spindle-shaped, usually much narrowed apically, the vein between it and second posterior cell markedly sinuous; middle cross vein varying in position from a little less to a little more than apical fourth of discoidal cell; the latter acute apically, its apical vein longish, S-curved; axillary lobe and alula well developed; squamae subopaquely whitish, white-fringed; knobs of halteres almost white. *Head* with the interocular space on vertex in ♂ as broad as ocellar tubercle, space in front of latter only a little broader than front ocellus or about as wide as front part of tubercle; interocular space on vertex in ♀ a little less than 2 times distance between outer margins of posterior ocelli; frons slightly depressed anteriorly and with only a small bare area anteriorly; face not distinctly convex medially; antennal joint 3 broadened bulb-like basally and slightly less than apical half slender; proboscis projecting beyond buccal cavity to opposite level of base of antennal joint 3, with some fine hairs below, its labellar lobes narrow and pointed apically. *Legs* with about 1-3 small spines anteriorly below and some spinelets on outer upper part of front femora; middle femora with about 6-9 long and short spines anteriorly below; hind ones with about 5-9 spines from near base below and numerous irregularly disposed spinelets on outer upper and inner apical parts, of which a few apical ones above are longish. *Hypopygium* of ♂ (text-fig. 70) with the outer apical angles of basal parts not prominently produced and with rather longish and conspicuous hairs towards apices of basal parts; basal strut produced antero-dorsally.

From 3 ♂♂ and 1 ♀ (types in the South African Museum and a paratype in the Transvaal Museum).

Length of body: about $12\frac{1}{2}$ -14 mm.

Length of wing: about 14 - $15\frac{1}{2}$ mm.

Locality: Transvaal: Potchefstroom (Ayres) (types). Orange Free State: Zastron (Kruger, April 1919).

Easily recognized by the creamy or very pale yellowish hair and by the infusion in wings which is slightly darker in first basal cell and absent in first submarginal



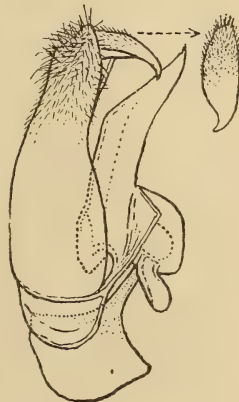
TEXT-FIG. 70. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia mollivestis* n. sp.

cell. The wing-infuscation very closely resembles that figured for *gigantea*, a species which Bezzi described from Nyasaland (loc. cit., pl. L, fig. 2). So close is this resemblance that Bezzi himself wrongly identified the ♂-paratype of this species (from Zastron) as his *gigantea* (see loc. cit., 1922). There is no doubt that this identification is erroneous for, according to Bezzi's description of the Nyasaland species, the latter is slightly larger, has golden hair on frons and face, has olive-brown tomentum and dense golden yellow hairs on the thorax, greyish hair on pleurae, yellow hair and golden scaling on abdomen above, golden hairs and scaling on legs, etc. The types and the other paratype in the South African Museum on the other hand were also wrongly determined by Bezzi as *liturata* Lw. (Bezzi, loc. cit. 1921). According to Loew's description of the latter and certain specimens in the collections before me, this species differs from *liturata* s. str. in not having black intermixed hairs on thorax above, in having black hairs only on sides of tergites 5-7 (or 8) and not on 3-7 (or 8) and in having no indication or tendency for a transverse darker preapical band to be present in the wing-infuscation.

Lomatia kaokoana n. sp.

Body black; apices of antennae sometimes yellowish; labellar lobes of proboscis dark castaneous brownish; tibiae and bases of tarsi (when denuded) dark brownish or dark reddish brown. *Vestiture* with the hair on ocellar tubercle, base of frons, antennae above and some intermixed ones below in some specimens black; hair on frons and especially on antennae below slightly pale sericeous yellowish; that on sides of face and on genae sericeous whitish; hair on body above straw-coloured yellowish to pale sericeous yellowish, especially in ♀, becoming slightly more yellowish posteriorly on sides of abdomen; thoracic and scutellar bristles pale sericeous yellowish or straw-coloured; hairs on sides of tergites 4-7 (or 8) with black intermixed ones and also with black ones across hind margin of last tergite; hair on pleurae and venter more sericeous whitish than above; scaling above gleaming sericeous yellowish or brassy yellowish, more golden posteriorly in ♀, extensive, though not very dense, and occupying most of the tergal surfaces laterally, but also with much black scaling; that on venter sericeous whitish or silvery; that on legs predominantly whitish or greyish whitish. *Wings* with a pattern consisting of a yellowish brownish, smoky brownish to coffee-brownish infusion, occupying the base, costal cell, basal halves of marginal and first submarginal cells, entire first basal cell, extreme base of first posterior cell, and as infusions along veins between discoidal and posterior cells and to a certain extent also along veins between second and third and third and fourth posterior cells; apical part of this infusion, from level of apex of costal cell across to base of second posterior cell, tending to be darker, especially along veins in this region, and to constitute a sort of preapical band; a faint spot-like infusion present on apical cross vein of second basal cell; greater part of second basal cell and at least basal two-thirds of

discoidal cell more or less clear like the vitreous hyaline apical part, the greater parts of posterior cells across hind border and the anal and axillary cells; alular part more subopaquely yellowish whitish; veins brownish to dark reddish brownish; basal comb poorly developed; first posterior cell slightly, or sometimes scarcely, narrowed apically; middle cross vein varying in position from about a little less than apical fourth to about apical sixth of discoidal cell; the latter acute apically, its apical vein substraight and slightly sinuous; alula and axillary lobe slightly reduced; squamae subopaquely whitish, yellowish bordered, white-fringed; knobs of halteres almost whitish. *Head* with the eyes in ♂ separated by ocellar tubercle, the space in front of it, at narrowest part, narrow and only a little broader than front ocellus; space on vertex in ♀ about, or a very little less than, 2 times distance between outer margins of posterior ocelli; frons slightly depressed anteriorly in ♀; face distinctly slightly convex medially; antennal joint 3 broadened club-like basally, its apical half or less slender; proboscis projecting beyond buccal cavity to at least opposite middle of antennal joint 3, with some sparse fine hairs below, its minutely spinulated labellar lobes narrow and pointed apically. *Legs* with a few minute spinelets on outer, upper, apical part of front femora; middle ones with about 2-4 spines anteriorly below; hind ones with about 2-5 spines on outer side below from about, or just before, middle and some fine spinelets on outer upper apical parts; basal joint of front tarsi in ♀ without long and conspicuous bristle-like spicules below. *Hypopygium* of ♂ (text-fig. 71) with the outer apical angles of basal parts not very much produced; lateral struts, viewed from ventral aspect of hypopygium, rather long; basal strut shaped as shown in outline.



TEXT-FIG. 71. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia kaokoana* n. sp.

From 1 ♂ and 4 ♀♀ (types in the South African Museum).

Length of body: about 6-9½ mm.

Length of wing: about 7½-11 mm.

Locality: South-west Africa (Kaokoveld): Kaoko Otavi (Mus. Exp., March 1926) (types); Kamanyab (Mus. Exp., March 1925).

This species is slightly variable in size, in the intensity of the wing-infusion and in the apical width of first posterior cell. Superficially the wing-infusion resembles that of *chraecopectera* to a certain extent, but the second basal, discoidal, anal and axillary cells are clear, whereas the second basal and discoidal cells in *chraecopectera* are distinctly tinged yellowish like the anterior infused parts and even the third and fourth posterior cells are also tinged in the latter. Moreover the broadened base of antennal joint 3 is longer and more club-like and not shortish and bulb-like as in *chraecopectera*.

Lomatia nivosa n. sp.

Body black; tibiae and bases of tarsi yellowish or very pale yellowish brownish. *Vestiture* with the hair on ocellar tubercle, basal half of frons and on upper and inner parts of antennae black; that on rest of frons, antennal joints below, on face and on genae sericeous or snow-whitish; hair on body above and below, including thoracic and scutellar bristles, also snow-whitish; that on propleural part, however, gleaming sericeous yellowish in certain lights; black intermixed hairs present on sides of tergites 4-7 and across hind margin of 7; scaling above silvery behind eyes, pale golden to golden yellowish on thorax and abdomen, especially on sides towards apex; that on venter silvery whitish; scaling on legs predominantly whitish or greyish whitish, appearing slightly yellowish on tibiae. *Wings* with a dark blackish brown infusion, occupying base, costal cell, more than basal halves of marginal and first submarginal cells, the entire first basal cell, base of first posterior cell, apical part or half of discoidal cell and conspicuously along veins separating discoidal cell from second and third posterior cells; at least basal two-thirds of second basal cell and its apical cross vein also infused, the infusion also extending or projecting apically along base of vein between submarginal cells, the apical margin of infusion thus not straight; apical part of second basal cell and medial basal part of discoidal cell more or less clear and with the apical part of wings, broadish hind border across the greater part of posterior cells and the entire anal and axillary cells clear vitreous hyaline; alular part opaquely yellowish; veins dark blackish brownish; basal comb much reduced; first posterior cell narrowed apically; middle cross vein at about, or a little more than, apical seventh of discoidal cell; the latter acute apically; alula and axillary lobe slightly reduced; squamae opaquely whitish, white-fringed; knobs of halteres whitish. *Head* with the interocular space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli; frons slightly foveately depressed anteriorly, the hair sparse medially; face slightly, but distinctly, convex medially; antennal joint 3 broadened bulb-like basally and fairly rapidly narrowed from base to slender part; proboscis projecting beyond buccal cavity to level of antennal joint 2, with a few fine hairs below, its finely spinulated labellar lobes narrow and pointed apically. *Legs* with about 3 or 4 spines on middle femora in front; hind ones with about 4 or 5 spines from just before middle below on outer aspect, with some fine spinelets on outer lateral aspect and 2 or 3 longer apical ones above; basal joint of front tarsi in ♀ without long and conspicuous spicules below.

From a ♀ in the British Museum.

Length of body: about 9 mm.

Length of wing: about 10 mm.

Locality: East Cape Province: Katberg (Turner, 1-10 Feb. 1933).

Easily recognized by its pale yellowish tibiae, predominantly sericeous whitish hair and dark infusion in anterior basal two-thirds of wings. From the ♀ of *chraecoptera* it may at once be distinguished by its darker infusion in wings, which

is continued apically along base of vein between submarginal cells, by the clearer hind border, especially in third and fourth posterior cells, its shorter first posterior cell, less sharply acute discoidal cell, the middle cross vein which is nearer apex of discoidal cell, more snow-whitish hair on body above and by the presence of black hairs on sides of tergites 4-7 and not only on 5-7. From *kaokoana* it differs in having the second basal and discoidal cells less clear, more snow-whitish hair and much paler tibiae.

Lomatia basutoënsis n. sp.

The ♀-specimen of this new species is almost indistinguishable from *nivosa* as far as its wing-pattern and wing-infuscation and general white hair are concerned. Certain other differences, however, point to a separate specificity: *Vestiture* with the hair on the antennae below with distinct intermixed black ones; that in collar-region across front margin of pronotum with distinct and conspicuous intermixed dark or black hairs and the black ones on sides of abdomen are distinct and conspicuous only on sides of tergites 5-7, there being no dense tuft also on sides of tergite 4 as in *nivosa*. *Head* with antennal joint 3 much broader, more bulb-shaped at base, the slender part relatively shorter; proboscis a little less than 1.5 mm. long, projecting less beyond buccal cavity, its labellar lobes relatively longer than in *nivosa* and not shorter than basal part. *Legs* with the tibiae darker. One ♂-specimen from the same region probably represents the ♂ of this species. It differs from the ♀-specimen in not having the base of vein between the submarginal cells in the wings so conspicuously infuscated, and the tibiae are distinctly more yellowish like those of ♀-*nivosa*. Other characters, such as the white hair and distribution of black hairs on sides of abdomen, agree with those of the ♀ and not with *nivosa*. The interocular space in front of ocellar tubercle is narrow, only about as broad as front ocellus. The third antennal joints are missing in this specimen. *Hypopygium* of this ♂ (text-fig. 72) with a tendency for beaked apical joints (shown in dorsal outline to the right) to be narrowish.



TEXT-FIG. 72. Side view of hypopygium and dorsal outline of right beaked apical joint of ♂ *Lomatia basutoënsis* n. sp.

From a ♂ and a ♀ (♂-type in the Durban Museum, ♀-type in the South African Museum).

Length of body: about 9½ mm. in ♀, 8 mm. in ♂.

Length of wing: about 11 mm. in ♀, 9 mm. in ♂.

Locality: Basutoland: Giant's Castle (Bevis, 16 Feb. 1939) (♂); Lekalabetsi River (Bevis, 9 April 1939) (♀).

Lomatia glauciella n. sp.

Body black; hind margins of sternites rather conspicuously yellowish; proboscis very dark piceous or castaneous brownish; legs with the subapical parts of femora yellowish brownish and the tibiae and base of tarsi yellowish or very pale yellowish brownish. *Vestiture* with the hair on ocellar tubercle, base of frons, antennae above and intermixed ones on antennae below black; hair on rest of frons, antennae below, sides of face and on genae sericeous whitish; that in mesopleural tuft, on pleurae and venter also sericeous or snow-whitish; hair on body above with distinct sericeous yellowish to very pale golden gleams in certain lights, that in front of wings as well as the thoracic and scutellar bristles and even some bristles in mesopleural tuft distinctly sericeous yellowish to pale golden; numerous, fine, erect, intermixed, black hairs present on disc of thorax and scutellum; hair on abdomen whitish on sides basally, but more golden to deep golden towards hind part from sides of tergite 3; a few black hairs present on sides of tergites 2 and 3 and more numerous and denser ones on sides of 4-8; scaling behind eyes laterally silvery whitish; that discally on thorax above and on base of scutellum golden; that on sides basally of scutellum and across hind margins of tergites 1 and 2 sericeous whitish; scaling on rest of abdomen above deep golden, especially on sides; that on venter dense and gleaming silvery



TEXT-FIG. 73. Wing of ♂ *Lomatia glauciella* n. sp.

whitish; that on legs predominantly whitish, but slightly greyish, yellowish on femora above and on tibiae. *Wings* in ♂ (text-fig. 73) relatively short, tinged greyish or faintly smoky greyish throughout, only second basal and discoidal cells and to a lesser extent base of anal cell appearing more hyaline; alular part, costal cell, basal halves of marginal and first submarginal cells and greater part of first basal cell slightly more subopaquely yellowish; a faint smoky brownish or greyish brownish infusion or cloudiness in the form of a faint preapical band visible from apex of costal cell across to base of second posterior cell and as a cloudiness or faint infusion along veins between discoidal and posterior cells and along the veins between posterior cells and also along vein between anal and axillary cells; a spot-like infusion present on apical cross vein of second basal cell and also along base of vein between submarginal cells; first, third and fourth main veins more or less yellowish brownish, the rest of the veins

more blackish brownish; basal comb much reduced; apical part of second vein rather recurved; first posterior cell much narrowed apically; middle cross vein at a little more than apical fifth to apical fourth of discoidal cell; the latter acute apically, its apical vein slightly sinuous; alula and axillary lobe moderately developed; squamae subopaquely whitish, yellowish-bordered, white-fringed; knobs of halteres almost white. *Head* with the eyes in ♂ separated on vertex by ocellar tubercle, the space in front of it, at narrowest part, very narrow and only a little wider than front ocellus; frons scarcely depressed in front and the medial part bare anteriorly; face slightly convex medially; antennal joint 3 gradually broadened club-like basally, the apical slender part short; proboscis projecting beyond buccal cavity to level of antennal joint 2, its minutely spinulated labellar lobes narrow and fairly sharply pointed apically. *Legs* with 2 or 3 small spines medially in front and 4 or 5 behind on front femora; middle ones with about 6 long and short spines in front and 3 or 4 behind; hind ones with about 9 or 10 somewhat irregularly disposed spines on outer side below from near base, some smaller ones laterally and a few longer ones apically above. *Hypopygium* (text-fig. 74) with the lateral struts rather broadish; hairs on apical part of basal parts not very dense, long, or conspicuous; beaked apical joints as shown in dorsal view.

From a ♂ in the South African Museum.

Length of body: about $10\frac{1}{2}$ mm.

Length of wing: about 10 mm.

Locality: South-western Cape Province: Caledon (Barnard, March 1918).

Easily recognized by the smoky greyishly tinged wings which show darker smoky brownish cloudiness or infusions preapically and along the veins in posterior parts, by the fine, blackish, intermixed hairs on thorax and by the yellowish tibiae. From a faded specimen of *pictipennis*, which may show a similar type of wing-infuscation, it may at once be distinguished by the presence of fine black hairs on thorax above and black hairs on sides of tergites 3-8, more whitish hair on thorax, narrower interocular space, etc.



TEXT-FIG. 74. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia glauciella* n. sp.

Lomatia liturata Lw.

(Loew, p. 205, *Dipt. Faun. Südaf.*, i, tab. ii, fig. 13, 1860.)

As was stated under *mollivestis*, Bezzi wrongly identified this species in his paper on the South African Bombyliidae (p. 113, *Ann. S. Afr. Mus.*, xviii, 1921). It is thus doubtful whether the specimens from Natal to which he refers (p. 145, *The Bombyliidae of the Ethiopian Region*, 1924) belong to *liturata*. By a careful comparison of some ♂♂ and ♀♀ in the collections before me with Loew's description (loc. cit.) and his figure (tab. ii, fig. 13) of the wing there appears to be

very little doubt that these specimens belong to Loew's *liturata*. The characters of this species, as based on the material before me, are as follows:

Body black; apices of antennae sometimes yellowish or yellowish brownish; labellar part of proboscis tending to be brownish or dark yellowish brownish; subapical part of femora, excluding black knees, the tibiae and the basal parts of tarsi yellowish brownish to reddish or castaneous brownish, even appearing paler when denuded. *Vestiture* with the hair on ocellar tubercle, slightly more than basal half of frons, antennae above and some or numerous intermixed ones on inner lower parts of antennae black; that on front part of frons and on antennae below gleaming very pale sericeous yellowish to even distinctly yellowish, especially on antennae below; that on sides of face and on genae more sericeous whitish; hair in hinder part of mesopleural tuft, on pleurae and venter sericeous whitish; that on thorax above straw-coloured yellowish, creamy to pale sericeous yellowish, that on each side in front of wings even more yellowish in certain lights; intermixed bristly hairs on thorax in front and on sides, the prealar, postalar and scutellar bristles and even some bristly hairs on coxae reddish golden or yellowish reddish; numerous, fine, shortish, erect, intermixed, black hairs present on disc of thorax and scutellum, and also on each side in front of wings; hair on abdomen more whitish to sericeous whitish on sides of tergites 1 and 2, but becoming more sericeous yellowish to yellowish posteriorly and with distinct black bristly ones or tufts on sides of tergites 2-7 (or 8); scaling on body above brassy to deep golden on disc of thorax and scutellum, that transversely across hind margins of tergites 1-3, in ♂ especially, paler, more whitish, usually longer, denser and more felt-like and the rest of the pale scaling more concentrated on sides of abdomen; rest of scaling on abdomen black; that on venter silvery whitish; scaling on legs greyish whitish on femora below and more greyish yellowish to dull yellowish on femora above and on tibiae. *Wings* with a pattern very similar to that figured by Loew (loc. cit., tab. ii, fig. 13), consisting of a more or less yellowish brownish, smoky brownish to blackish brownish infusion in anterior basal two-thirds, which is more or less subopaquely yellowish, dirty yellowish or yellowish whitish at base, in costal cell and in a little less than basal halves of marginal and first submarginal cells and darker or more chocolate-brownish in an irregular preapical band from apex of costal cell across to extreme base of first posterior cell and upper part of discoidal cell just under middle cross vein, in entire first basal cell, at base of vein between submarginal cells, as a cloudiness or infusion along veins between discoidal and posterior cells, to a lesser extent along veins between third and fourth posterior cells and also along veins between anal and fourth posterior cells and anal and axillary cells, leaving the greater parts of second basal and discoidal cells more or less clear like the apical third of wings, greater part of posterior cells and the anal and axillary cells; basal third of first submarginal cell usually also tending to be subopaquely clear like second basal and discoidal cells, sometimes with a distinct, though faint, brownish or smoky tinge in third and fourth posterior cells and apical part

of anal cell; a distinct spot-like infusion present on apical cross vein of second basal cell and a fainter one at base of third posterior cell; veins very dark brownish to blackish brown, the first vein, basal half of third and sometimes the fifth being, however, more reddish brownish; basal comb moderately developed; first posterior cell distinctly narrowed apically; middle cross vein varying in position from about a little more than apical fifth to a little more than apical sixth of discoidal cell; the latter not very sharply acute apically, its apical vein substraight or slightly sinuous; alula and axillary lobe fairly well developed; squamae subopaquely whitish, yellowish-bordered, whitish-fringed; knobs of halteres very pale. *Head* with the eyes in ♂ separated by ocellar tubercle, the narrow space in front of it, at narrowest part, only a little broader than front ocellus; interocular space on vertex in ♀ about, or a very little less than, 2 times distance between outer margins of posterior ocelli; frons slightly foveately depressed anteriorly, especially in ♀, its hair dense anteriorly, leaving only a small bare area; face very slightly convex medially; antennal joint 3 broadened club-like basally, gradually narrowed to a slender apical part; proboscis projecting beyond buccal cavity to opposite base of antennal joint 3, with sparse, fine hairs below, its finely spinulated labellar lobes narrow and pointed apically. *Legs* sometimes with more numerous spines on femora in ♂ than in ♀, with only about 1 or 2 spines in front on front ones in some ♀♀, and sometimes as many as 9 below in ♂ and in some ♀♀, and sometimes with numerous spinelets on outer apical part as well; middle femora with about 2-5 spines in front in some ♀♀, and about 4-12 in some ♂♂ and ♀♀; hind ones with about 4-6 spines in ♀ and 6-10 in ♂ anteriorly below, with numerous spinelets along outer upper aspect and some longish ones apically above; basal joint of front tarsi in ♀ without any long and conspicuous bristle-like spicules below. *Hypopygium* of ♂ (text-fig. 75) with the outer apical angles of basal parts rather angularly prominent with some coarse punctures on apical parts of basal parts, the ramus on each side from basal part to aedeagal complex broad and well developed; lateral struts broadish.



TEXT-FIG. 75. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia liturata* Lw.

In the Transvaal and South African Museums.

Length of body: about 8-14 mm.

Length of wing: about $8\frac{1}{2}$ - $14\frac{1}{2}$ mm.

Locality: Cape Province, Karoo, and Orange Free State.

Slightly variable in size and in the intensity of the wing-infusion. Certain specimens from the Eastern Cape in the collections differ from the form described above in having the tibiae darker or almost black, more uniformly and darker

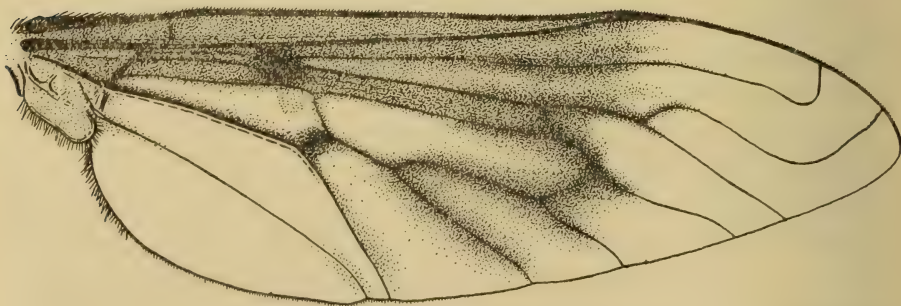
infuscated wings of which the costal cell, more than basal half of marginal cell and first basal cell are more uniformly brownish or chocolate-brownish and the tendency for a distinct preapical darker band thus less evident; third and fourth posterior cells and apical part of anal cell also more distinctly tinged; black hairs on thorax discally more numerous and in some cases even some of the prealar bristles are also dark and the dark intermixed hairs on antennae below are also more numerous.

Three other ♀♀ from the Koup Karoo also appear to represent another distinct form which is characterized by a very dark blackish brown infuscation in the wings in which the costal cell, like the Eastern Cape form, is not slightly yellowish; hair on body, especially on thorax above and abdomen, distinctly whiter than in more typical forms, without any sign of intermixed dark hairs on disc of thorax and scutellum; tufts on antennae below entirely sericeous white, without any intermixed black hairs.

Lomatia grisealis n. sp.

This species resembles *liturata* so closely that it may almost be considered as a distinct and well-defined variety. There are nevertheless distinct and constant differences which point to a separate specific status. Compared with *liturata* and its slight varieties these specimens differ in the following respects:

Vestiture with the hair on antennae below in both sexes entirely sericeous whitish and without any dark intermixed hairs; that on thorax above, excepting the fine, erect, black hairs discally above on each side, predominantly whitish to sericeous whitish, not tinted creamy yellowish or sericeous yellowish and not or scarcely contrasting much with the white hair on pleurae and venter; prealar, postalar and scutellar bristles yellowish, there being also no distinct intermixed reddish golden bristly hairs on sides of thorax; hair on sides of abdomen predominantly sericeous whitish in both sexes, not becoming yellowish posteriorly; black hairs present only on sides of tergites 3-7 (or 8). *Wings* (text-fig. 76) with the dark blackish brown or chocolate-brownish infusion very similar, but more uniform, there being no tendency for a transverse medial



TEXT-FIG. 76. Wing of ♂ *Lomatia grisealis* n. sp.

more subopaquely yellowish band to be present and thus also no distinct indication of a darker preapical transverse band; basal part of first submarginal cell also less clear, the apical part of discoidal cell also more infused and apical part of anal cell more constantly clear and the apical clear hyaline part of wings showing a more distinct milky whitish tint in certain lights; first posterior cell tending to be less narrowed apically. *Head* with the interocular space in front of ocellar tubercle in ♂ slightly narrower, only about as wide as front ocellus, but distinctly longer and about as long as narrowish tubercle, whereas in *liturata* it is slightly shorter than the tubercle; space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli. *Legs* with the tibiae much darker, not very much paler than femora; front femora with about 2-6 small spines in front and some spinelets along outer apical part; middle ones with about 4-10 spines in front; hind ones with about 6-11 spines from near base on outer side below. *Hypopygium* of ♂ resembles that of *liturata*, but the lateral struts are slightly longer and basal strut is distinctly less long and broad from side view, slightly differently shaped, its dorsal angle distinctly more produced and angular and its general shape more like that of *basutoënsis* (cf. text-fig. 72) or *semiclara* (cf. text-fig. 66).

From 3 ♂♂ and 1 ♀ (types in the Transvaal Museum and a paratype in the South African Museum).

Length of body: about 11-13 mm.

Length of wing: about $12\frac{1}{2}$ - $14\frac{1}{2}$ mm.

Locality: Eastern Cape Province: Resolution in the Albany Dist. (Walton, 18 April 1928 and April 1927) (types). Karoo: Willowmore (Brauns, March 1916).

Lomatia crossodesma n. sp.

A ♂-specimen in the collections before me also belongs to the *liturata* and *grisealis* series as far as its wing-infusion and general superficial resemblance go. When compared with both of them it, however, differs in the following respects:

Vestiture with the hairs distinctly shorter on both thorax and abdomen; hair on thorax with a distinct shortish shorn-off appearance and that on head in



TEXT-FIG. 77. Wing of ♂ *Lomatia crossodesma* n. sp.

front also comparatively shorter; that on antennae below with fewer dark ones than in *liturata*; that on thorax above slightly paler than in *liturata*, but more creamy yellowish than in *grisealis*; dark hairs on disc of thorax much shorter and finer than in these two species, almost confined discally on each side, being absent on sides towards the front and also on disc of scutellum; hair on sides of abdomen shorter, the black hair or tufts on sides of tergites 3-8 distinctly very much denser, more conspicuous; pale sericeous yellowish to greyish yellowish scaling on abdomen distinctly denser, arranged in broader and more conspicuous transverse bands; scaling on legs also appearing more yellowish in certain lights. *Wings* (text-fig. 77) with the smoky brownish infusion occupying the costal cell, more than basal halves of marginal and first submarginal cells, entire first basal cell, extreme base of first posterior cell and as a cloudiness in apical half of discoidal cell, along vein between discoidal and third posterior cells, without any basal infusion in second posterior cell; the infusion not showing distinct transverse bands as in *liturata* and differing from that of *grisealis* in being absent from second posterior cell basally and less conspicuous along veins between discoidal cell and posterior cells, a more extensive apical part and broader hind border in addition to the anal and axillary cells being clear hyaline; basal comb even more reduced; first posterior cell slightly less narrowed apically, more like that of *grisealis*; middle cross vein between apical fourth and apical fifth of discoidal cell. *Head* with the narrow interocular space



TEXT-FIG. 78. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia crossodesma* n. sp.

in front of ocellar tubercle in ♂ like that of *liturata* and thus distinctly shorter than that of *grisealis*; antennal joint 3 with the slender apical part tending to be shorter than in the other two species. *Legs* with the tibiae as dark as in *grisealis*; middle femora with about 6 spines in front; hind ones with about 5 or 6 spines externally below and with numerous spinelets along outer and upper apical parts. *Hypopygium* as shown in text-fig. 78, with the basal parts slightly narrower than in *liturata*, but also punctured in neck region; lateral struts distinctly narrower and more pointed apically than in *liturata* and the basal strut slightly differently shaped, and with a small triangular flange present laterally on each side of its base.

From a ♂ in the Transvaal Museum.

Length of body: about 10 mm.

Length of wing: about 11 mm.

Locality: Karoo: Willowmore (Brauns, April 1924).

Lomatia albicoma n. sp.

Body black; apical parts of third antennal joints yellowish or pale yellowish brownish; proboscis dark blackish brownish; legs dark castaneous brownish,

the tibiae slightly paler than the femora, more reddish brownish or even yellowish brownish in some specimens. *Vestiture* with the hair on frons anteriorly, antennae below, on sides of face and genae sericeous whitish; that at base of frons, on antennae above and on inner lower parts black; hair on body above and below predominantly snow-whitish or sericeous whitish; that on sides of abdomen posteriorly sometimes gleaming slightly sericeous yellowish in certain lights; tufts on extreme sides of tergites 4 (or 5) to 7 (or 8) black; prealar, postalar and scutellar bristles pale sericeous yellowish to yellowish; scaling above gleaming very pale sericeous yellowish to almost whitish in ♂, distinctly more brassy yellowish in ♀, denser and more conspicuous in ♀ across hind margins of tergites, especially on sides; that on venter sericeous whitish in both sexes; that on legs white, appearing slightly greyish yellowish on tibiae in certain lights. *Wings* for the greater part glassy hyaline, iridescent, with the base, costal cell, basal parts of marginal and first submarginal cells, greater part of first basal cell, second basal cell to a great extent, base of discoidal cell and sometimes even extreme base of fourth posterior cell tinged pale yellowish brownish; basal comb poorly developed; first posterior cell slightly narrowed, but still broadly open apically, distinctly much longer than discoidal cell; the latter truncate apically, its apical cross vein straight and oblique; middle cross vein at a little less than apical third to a little less than apical fourth of discoidal cell; alula and axillary lobe comparatively well developed, the latter broad; squamae subopaquely whitish, white-fringed; knobs of halteres almost white. *Head* with the interocular space in front of ocellar tubercle in ♂ narrow, only a little broader than front ocellus, or about as broad as narrow front part of tubercle; space on vertex in ♀ about 2, or a little more, times distance between outer margins of posterior ocelli; frons not or scarcely depressed anteriorly; face very slightly convex medially; antennal joint 3 bulb-shaped or onion-shaped basally, the apical slender part rather slender; proboscis projecting much beyond buccal cavity, its labellar lobes narrow, long, and pointed apically. *Legs* with 1 spine anteriorly on middle femora below; hind femora with 3 or 4 spines on outer lower apical part, at least 2 apical spines above and some spinelets on outer apical aspect; basal joint of front tarsi in ♀ with some longish, bristly spicules below. *Hypopygium* of ♂ as shown in text-fig. 79, with less hair on apical parts of basal parts than in preceding species and with the lateral struts rather angularly pointed apically.

From 7 ♂♂ and 3 ♀♀ (holotype in the Transvaal Museum, allotype in the South African Museum and paratypes in the Albany Museum).

Length of body: about $5\frac{1}{2}$ –8 mm.



TEXT-FIG. 79. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia albicoma* n. sp.

Length of wing: about $5\frac{1}{2}$ –9 mm.

Locality: South-eastern Cape Province: Resolution (Grahamstown in Albany Dist.) (Walton, 25 March 1928 (holotype), Jan.–April 1928 (allotype), 19 March 1928, 21 March 1928); Fort Brown (Walton, 20 March 1928).

Easily recognized by the yellowish brownish infusion in wings which occupies more or less anterior basal half, the well-developed alula and axillary lobe, truncate discoidal cell, the predominantly white hair and frons which is not distinctly depressed anteriorly. From *pulchriceps* Lw. it may at once be distinguished by the predominantly white hair, absence of black hairs on antennae below, pale prealar bristles, dark hairs only on sides of tergites 4–7 (or 8), bulb- or onion-shaped antennal joint 3, etc.

Lomatia salticola n. sp.

Body black; apical parts of antennae yellowish; proboscis very dark castaneous or piceous brownish; palps dark reddish brownish; tibiae and basal parts of tarsi appearing black, but, when denuded, very dark reddish or piceous brownish. *Vestiture* with hair on ocellar tubercle, on more than basal half of frons, antennae above and intermixed hairs, or a dense tuft in ♂, on inner lower aspect of antennae black; that on front part of frons, outer lower parts of antennae, face and genae sericeous whitish; that on antennae below sometimes with a distinct sericeous yellowish tint, especially in some ♀♀; hair on body above predominantly sericeous yellowish to golden or deep golden yellowish; that on thorax, especially laterally, with a deeper and more reddish or orange golden sheen in certain lights; that on abdomen discally above appearing slightly paler sericeous yellowish to even almost whitish in some ♂♂, that on sides in ♂ on the whole paler and more whitish and even more sericeous whitish on sides of tergites 1 and 2; thoracic and scutellar bristles entirely golden yellowish to reddish golden; conspicuous black bristly hairs or tufts present on sides of tergites 2–7 (or 8), but more conspicuous in ♂; hair in lower parts of mesopleural tuft, on pleurae and venter white or sericeous whitish, contrasting with that above; some intermixed black hairs on last sternite; scaling on thorax and abdomen above golden to deep or even reddish golden in certain lights; that on abdomen in narrowish transverse bands, more conspicuous laterally; scaling on venter sericeous whitish; that on legs gleaming ochreous yellowish to slightly brownish yellowish on outer and upper surfaces of femora and on tibiae, but more greyish whitish on lower and posterior parts of femora. *Wings* with a greyish subopacity or greyish hyaline tinge throughout, the extreme base blackish; the base, costal cell, basal half of marginal cell and entire first basal cell yellowish brown to brownish, the costal cell and base slightly more subopaquely yellowish and the entire first submarginal cell greyish hyaline like rest of uninfuscated parts; veins dark brownish or blackish brown, the first and fifth veins being slightly paler; basal comb moderately developed; first posterior cell narrowed apically; apical part of second vein rather recurved at apex; middle cross vein varying in position from about a

little more than apical fifth to about, or a little more than, apical sixth of discoidal cell; the latter slightly acute apically, its apical vein slightly sinuous; alula and axillary lobe well developed; squamae subopaquely dirty whitish, dark-bordered, whitish-fringed; knobs of halteres very pale yellowish. *Head* with the eyes in ♂ separated by ocellar tubercle on vertex, the space in front of it only a little narrower than tubercle; space on vertex in ♀ about, or a little more than, 2 times distance between outer margins of posterior ocelli; frons shining in ♀, slightly transversely depressed anteriorly in ♀, much less evident in ♂, its hairs dense anteriorly, leaving only a small medial area bare; face distinctly convex medially, more or less tumidly prominent apically; antennae with joint 1 comparatively stout and incrassate, with joint 3 thickened club-like basally, narrowed apically, more so below, to a slender apical part at least half as long as broadened base; proboscis comparatively long, projecting much beyond buccal cavity to even beyond middle of antennal joint 3, without any visible spinules below, its finely spinulated labellar lobes narrow and pointed apically; palps subequal in length to, or a little longer than, antennal joint 3. *Legs* without any or with 1 spine anteriorly and usually with 2 or 3 spinelets on outer upper part of front femora; middle ones with about 3–5 spines below in front; hind ones with about 5–6 spines from just before middle anteriorly below, with some spinelets along outer and upper parts and with a few longer ones apically above; basal joint of front tarsi in ♀ with some longish, bristle-like spicules below towards apex, these however shorter than the joint itself. *Hypopygium* of ♂ (text-fig. 80) with rather longish and conspicuous hairs on apical part of basal parts; beaked apical joints tending to be broadish and leaf-shaped.



TEXT-FIG. 80. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia salticola* n. sp.

From 2 ♂♂ and 5 ♀♀ (types in the South African Museum).

Length of body: about $11\frac{1}{2}$ – $13\frac{1}{2}$ mm.

Length of wing: about $11\frac{1}{2}$ –14 mm.

Locality: Koup Karoo–Little Karoo: Meiringspoort (Barnard, Feb. 1932).

Easily recognized by the greyish subopacity of the wings and the yellowish brownish infusion in costal part and first basal cell, golden yellowish hair on body above, etc. Superficially it resembles *pulchriceps* Lw., but may at once be distinguished by the more greyish-tinged wings, first posterior cell which is relatively shorter and more narrowed apically, more contrasting whitish hair on body below, less dense black hair on antennae below, larger size, etc.

Lomatia vicinalis n. sp.

Body black; buccal rim, proboscis, palps and tibiae very dark reddish brownish. *Vestiture* with the hairs on ocellar tubercle, base of frons and on

antennae above black; that on frons, antennae below and genae gleaming sericeous yellowish; that on body above sericeous yellow or pale golden, without any black prealar bristles; hair on pleurae scarcely paler; that on sides of abdomen gleaming paler sericeous yellowish in certain lights; black hairs present on sides of tergites 5-8 and without any dark hairs on last sternite; scaling on thorax (where still present) golden yellowish; that on legs dull yellowish to whitish, more yellowish on femora. *Wings* with a uniform greyish brownish tinge throughout, the base, costal cell, basal half of marginal cell and first basal cell darker, more yellowish brownish, the costal cell appearing more yellowish; brownish spot-like indications present on apical cross veins of first and second basal cells; veins yellowish or reddish brown; basal comb moderately developed; first posterior cell broadish, narrowed apically, but still broadly open on hind margin, much shorter than discoidal cell; middle cross vein at a little less than apical fourth of discoidal cell; the latter slightly acute



TEXT-FIG. 81. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia vicinalis* n. sp.

apically, its apical vein slightly sinuous and joining first posterior cell at a point considerably lower than base of vein between submarginal cells on opposite side of cell; alula with its apex moderately lobe-like; squamae subopaquely dirty whitish, white-fringed; knobs of halteres yellowish. *Head* with the eyes in ♂ separated by ocellar tubercle on vertex, the space in front of tubercle only a little narrower than tubercle; frons with the hair anteriorly occupying entire middle upper part; face convex medially; antennae with joint 1 stout and incrassate, joint 3 thickened club-like basally, the slender part a little more than $1\frac{1}{2}$ times as long as basal bulb-like part; proboscis fairly relatively long, projecting much beyond buccal cavity, with fine and minute spinules below, its labellar lobes elongated and pointed apically; palps nearly or about as long as antennae.

Legs without any spines visible on front femora; hind ones with about 4 spines on outer apical aspect. *Hypopygium* of ♂ (text-fig. 81) very similar to that of *salticola*, but with the beaked apical joints more slender and narrower and the aedeagus also more slender, its apical half slightly longer.

From a ♂ in the British Museum.

Length of body: about 11 mm.

Length of wing: about 13 mm.

Locality: Natal: Willow Grange (Wroughton, 27 Jan. 1914).

Superficially this species resembles *salticola* from which it may be distinguished by the more sericeous yellowish hair on head in front, absence of any black hairs on antennae below, more yellowish hair on body below, the presence of black hairs only on sides of tergites 5-8, distinctly longer palps, slightly longer first

posterior cell, paler anterior infuscation in wings, darker tibiae, etc. From other species with slightly tinged wings it is distinguished in the key.

Lomatia oreophila n. sp.

Body black; proboscis dark castaneous brownish; legs dark. *Vestiture* with the hair on body above predominantly sericeous yellowish to golden yellowish; that on body below scarcely paler, but showing paler sericeous gleams, especially on venter, where it is almost white in certain lights; pale hair on frons anteriorly and on antennae laterally below sericeous yellowish to golden, that on genae more whitish; hair on basal half of frons, antennae above, densely on inner lower aspect of antennal joint 1, at least three or four (or sometimes more) prealar and sometimes some postalar bristles and intermixed bristles on sides of tergites 2-7 (or 8) black; scaling on body above gleaming brassy yellowish or golden, those concentrated in transverse bands across hind margins of tergites slightly broader and more conspicuous in ♀; that on venter more whitish; that on legs greyish whitish, but appearing more yellowish greyish, especially on outer surfaces, in certain lights. *Wings* with a dark yellowish brown or blackish brown infuscation occupying the base, costal cell, basal half of marginal cell, more or less basal half of first submarginal cell, entire first basal cell, extreme base of first posterior cell and to a lesser and variable extent the lower part of second basal cell and extreme base of fourth posterior cell; rest of wings greyish hyaline or faintly smoky greyish, the basal half or part of first submarginal cell, however, always tending to be less infused than the rest of darker anterior half of wings; darker, spot-like infusions evident on apical cross veins of basal cells, at base of vein between discoidal and third posterior cells and at base of vein between submarginal cells; veins dark blackish brown and the alular part subopaquely yellowish; basal comb moderately developed; first posterior cell narrowed apically, more or less sub-spindle-shaped even though broadly open apically, much shorter than discoidal cell; middle cross vein near apex of discoidal cell, its distance from apex of the latter slightly shorter than, or subequal in length to, apical cross vein of discoidal cell; the latter subacute apically; alula and axillary lobe somewhat reduced and narrowish; squamae subopaquely yellowish, yellowish-bordered, fringed with almost whitish hair; knobs of halteres very pale and almost white. *Head* with the interocular space in front of ocellar tubercle in ♂ narrow, only about as broad as front ocellus; space on vertex in ♀ a little more than 2 times distance between outer margins of posterior ocelli; frons slightly depressed anteriorly in ♀; face slightly convex medially; antennal joint 3 broadened bulb-like basally, more rapidly narrowed below from broadened part, the slender part about $1\frac{1}{3}$ to nearly 2 times length of bulb; proboscis projecting beyond buccal cavity to even beyond level of antennal joint 2, its labellar lobes narrowish and pointed; palps subequal in length to or only slightly longer than antennal joint 3. *Legs* with about 3-7 spines on lower anterior aspect of middle femora; hind femora with about 4-7 spines on outer lower aspect, with some spinelets on upper outer aspect and

with 3 or 4 longer ones apically above; basal joint of front tarsus in ♀ without very long bristly spicules below. *Hypopygium* of ♂ differs from that of *salticola* (cf. text-fig. 80) in having less hair on apical parts of basal parts, a more slender aedeagus, a ramus which is more angularly produced on each side of middle part of aedeagal complex and a basal strut which, in profile, is smaller, more rounded and not angularly produced dorsally.

From 11 ♂♂ and 11 ♀♀ (types in the South African Museum and paratypes in the Durban Museum).

Length of body: about $6\frac{1}{2}$ –10 mm.

Length of wing: about 7 – $10\frac{1}{3}$ mm.

Locality: Basutoland: Mamalapi Mountain (Guillarmod, 27 Dec. 1948) (types); Giant's Castle (Bevis, 25 Feb. 1939 and 16 Feb. 1939); Mahlomolas (Bevis, 14 Feb. 1939); Rafanyane Valley (Bevis, 2 Jan. 1947); Little Bokong River (Bevis, 5 Jan. 1947); Haha-la-Sekhonyana (Guillarmod, 30 Dec. 1946); Likolobeng Mtn. (Guillarmod, 28 Dec. 1948). Natal: Cathedral Peak area, Natal Drakensberg, alt. 7,700 ft. (B. Stuckenberg, 20 March 1955).

Resembles *salticola* and like the latter it also frequents mountains. From *salticola* it differs in having denser black hair on antennae below, three or four black prealar bristles, less dense black hair on sides of abdomen, no whitish hair on body below, a more bulb-shaped third antennal joint, narrower interocular space in ♂♂, etc.

Lomatia conocephala (Macq.)

(Macquart, p. 62, *Dipt. Exot.*, ii, tab. xx, fig. 1, 1840; Bezzi, p. 115, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 146, *The Bombyliidae of the Ethiopian Region*, 1924.)

As was stated by Bezzi (p. 115, loc. cit.) this species was unrecognizably described by Macquart and can only be identified from his figure of the wing. Bezzi, however, was only acquainted with representatives of one species having the type of wing-infusion figured by Macquart. In the collections before me there is however also another distinct species which has a similar wing-pattern and which may also be referred to *conocephala* if the wing-infusion be the only criterion. In the absence of any reliable criteria in Macquart's brief description, and in view of the fact that Bezzi has given a description of the specimens which he believed to represent Macquart's species, the specimens belonging to this second species, referred to above, are referred to a separate and new species, and the ♂♂ and ♀♀ before me, which are specifically identical with the specimen labelled by Bezzi (p. 115, loc. cit.) as *conocephala*, are all provisionally retained in Macquart's species. The species *conocephala*, as based on the said material, has the following characters:

Body black, apices of antennae usually yellowish or yellowish brownish; proboscis dark castaneous brownish to piceous brownish; tibiae and basal parts of tarsi usually appearing dark, but dark piceous, or reddish brownish, or even

dark yellowish brownish when denuded. *Vestiture* with the hair on ocellar tubercle, base of frons, sometimes with some sparse or intermixed ones on antennae above and sometimes also with sparse intermixed ones below black; that on rest of frons, antennae below, sides of face and on genae gleaming sericeous whitish to pale sericeous yellowish; that on antennae below, in some ♀♀ especially, with a slight yellowish tint in certain lights; hair on thorax above and on sides in front of wings straw-coloured yellowish to pale sericeous yellowish; bristles on thorax and scutellum entirely pale or very pale sericeous yellowish, without any intermixed dark hairs; hair on abdomen very pale, sericeous whitish on sides, but that discally usually with a faint yellowish tint in certain lights; hair in hinder part of mesopleural tuft, on pleurae, in metanotal tuft and on venter sericeous or snow-whitish, whiter than above; distinct black intermixed bristly hairs present on sides of tergites 2 or 3 to apex, being more conspicuous posteriorly; scaling on body above gleaming very pale to deeper sericeous yellowish, that across hind margins of tergites in narrow linear bands, with black scaling occupying rest of abdominal surface above; that on venter sericeous whitish; scaling on legs greyish whitish to whitish, appearing greyish yellowish on upper and outer parts of femora and on tibiae. *Wings* more or less dimidiately infuscated as portrayed by Macquart (loc. cit., tab. xx, fig. 1), the brownish to smoky brownish infusion occupying the base, costal cell, basal halves of marginal and first submarginal cells, entire first basal cell, sometimes extreme base of first posterior cell, leaving the rest of wings hyaline or very slightly greyish hyaline, only the greater part of second basal cell and sometimes upper part of discoidal cell being slightly tinted more greyish; a brownish spot-like infusion present on apical cross vein of second basal cell and to a much lesser extent at base of vein between discoidal and third posterior cells; costal cell usually slightly more subopaquely yellowish whitish than brownish in certain lights; alular part also more subopaquely whitish; veins yellowish brownish to coffee-brownish, the first vein, base of third and basal parts of other veins tending to be paler yellowish brownish; basal comb moderately developed; first posterior cell subspindle-shaped, distinctly narrowed apically; base of vein between submarginal cells sometimes tending to be bent down at right angles; middle cross vein at about, or a little more or a little less than, apical fifth of discoidal cell; the latter subacute to acute apically; alula and axillary lobe moderately developed; squamae opaquely whitish, yellowish-bordered, white-fringed; knobs of halteres very pale to almost whitish. *Head* with eyes in ♂ on vertex separated by ocellar tubercle, the space in front of it, at narrowest part, as wide as, or a little broader than, front ocellus; interocular space in ♀ about, or a very little more than, 2 times distance between outer margins of posterior ocelli; frons slightly



TEXT-FIG. 82. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia conocephala* (Macq.).

depressed anteriorly, the hair anteriorly leaving only a small medial area bare; face slightly convex medially; antennal joint 3 broadened club-like or bulb-like basally, its apical half at least slender; proboscis projecting beyond buccal cavity to level of base of antennal joint 3, its minutely spinulated labellar lobes narrow, elongate and pointed apically. *Legs* without any spines on front femora below; middle femora with about 2-6 spines on anterior lower part and sometimes with 1-4 on posterior apical aspect; hind ones with about 4-7 spines outwardly below from just before middle to apex, with some spinelets on outer and upper parts and with 3 or 4 apical spines above; basal joint of front tarsi in ♀ without any distinct and conspicuous bristle-like spicules below. *Hypopygium* of ♂ (text-fig. 82) with the beaked apical joints tending to be narrowish and the lateral struts and basal strut rather well developed; hairs towards apices of basal parts moderately developed.

In the Deutsches Entomologisches Institut, the Transvaal, Natal and South African Museums.

Length of body: about $8\frac{1}{2}$ -12 mm.

Length of wing: about 9-12 mm.

Locality: Eastern Cape Province, Orange Free State and Transvaal.

Lomatia septoptera n. sp.

This species is very similar to *conocephala*, having an identical type of wing-infusion, but may be distinguished by the following characters:

Vestiture with the hair on antennae above entirely black, that on antennae below also predominantly black or in both sexes with more numerous and more conspicuous black hairs; hair on thorax and abdomen above gleaming distinctly more sericeous whitish, not contrasting much with the snow-whitish ones on



TEXT-FIG. 83. Wing of ♂ *Lomatia septoptera* n. sp.

pleurae and venter, only that on each side in front of wings and in mesopleural tuft having a slight yellowish tint due to presence of intermixed golden yellowish or even reddish golden bristly hairs; fine, reddish golden, gleaming hairs also on disc of thorax; distinct intermixed black bristly hairs and bristles present on thorax in front and on sides in front of wing-bases and on scutellum; prealar,

postalar and scutellar bristles also black; bristly hairs in metanotal tuft also predominantly black; hair on sides of abdomen distinctly and more conspicuously tufty, more shaggy and longer, the black bristly hairs or bristles on sides of tergite 2 to apex distinctly denser, more numerous, more conspicuous and more in form of dense black tufts in both sexes, hairs on sides of last two tergites appearing more whitish; pale scaling on abdomen above, especially that in form of narrow transverse bands across hind margins of tergites, distinctly more yellowish, more golden to reddish golden than in *conocephala*; yellowish-tinted scaling on outer and upper parts of femora and on tibiae slightly more intense. *Wings* (text-fig. 83) very similarly infused, the infusion occupying the same area, but tending to be slightly darker and more uniform; first posterior cell similarly narrowed apically; middle cross vein varying in position from about a little less than apical fourth to a little less than apical fifth of discoidal cell; the latter slightly more sharply pointed apically. *Head* with the narrow interocular space in front of tubercle in ♂ also about as broad as width of front ocellus, but slightly longer; interocular space in ♀ also about, or a little more than, 2 times distance between outer margins of posterior ocelli; proboscis projecting to the same extent, but with distinct fine hairs below, its labellar lobes also elongate and pointed apically, their spinules however slightly more conspicuous. *Legs* usually with about 1-5 spines anteriorly below on front femora and with some spinelets on outer upper part; middle femora with about 4-7 spines anteriorly below; hind ones with about 5-7 spines on outer lower part, some irregularly disposed spinelets on outer and upper parts and a few longish apical spines above; basal joint of front tarsi in ♀ with some distinct, longish, bristle-like spicules below towards apical part, these however much shorter than the joint itself. *Hypopygium* of ♂ (text-fig. 84) with the neck-region of basal parts, especially laterally, covered with some coarse punctures; lateral struts tending to be broadish; beaked apical joints narrowish (see dorsal view to the right).

From 1 ♂ and 2 ♀♀ (holotype in the South African Museum and allotype in the Transvaal Museum).

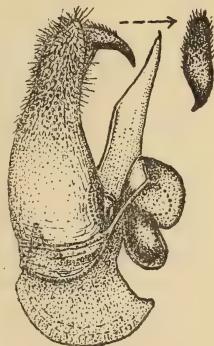
Length of body: about 10-11½ mm.

Length of wing: about 10-13 mm.

Locality: Orange Free State: Smithfield (Kannemeyer, Sept. 1910) (holotype). Karoo: Willowmore (Brauns, April 1922) (allotype). South-eastern Karoo: Resolution in the Albany District (Walton, April 1927).

Lomatia conicera n. sp.

Body black; proboscis dark piceous brownish; legs very dark piceous blackish, the femora almost black, but tibiae more dark piceous reddish. *Vestiture* with the hairs on front half of frons in ♂, on less than front half in ♀, most of those



TEXT-FIG. 84. Side view of hypopygium and dorsal view of beaked apical joint of ♂ *Lomatia septoptera* n. sp.

on antennae below in both sexes, those on sides of face and genae silvery white; most of the hair on thorax and scutellum above, postalar and scutellar bristles, dense hairs in mesopleural tuft, on pleurae and prosternal part, coxae, sides of tergites 1-2, in part on 3, on venter, especially on sides (or extreme inflexed sides of tergites), and hairs on femora snow-white; hairs on ocellar tubercle, more than basal half of frons in ♀, basal half in ♂, fine ones on antennae above, numerous ones on antennae below in both sexes, extreme front part of collar above, intermixed bristly hairs on sides of thorax in front of wings, especially in ♀, some longish ones discally across base of thorax, prealar bristles in ♀ and dense hairs on sides of tergites from 3-7 (or 8) (denser posteriorly) in both sexes black; fine, sparse scaling on disc of thorax and scutellum and more or less narrowly across hind margins of tergites pale brassy to golden yellowish, becoming more silvery posteriorly; rest of fine scaling on abdomen above black; scaling on venter dense, especially across hind margins of sternites, snow-white; scaling on legs mainly snow-white, with some dark ones towards apices of femora, especially hind ones. *Wings* greyish hyaline, but with the base, costal cell, basal halves of marginal and first submarginal cells and entire first basal cell in both sexes infuscated dark smoky brownish or blackish brown, even the second basal cell and extreme upper part of discoidal cell (just below fourth vein) faintly tinged, with the dark anterior infuscation ending rather truncately across level of apex of first basal cell as in *septopectera* and *conocephala*; veins very dark brown to blackish brown; second vein much recurved apically; base of upper branch of cubital fork showing an indication of a stump; first posterior cell subequal in length to discoidal cell; the latter subacute apically, its apical vein almost straight or only very slightly sinuous; middle cross vein at about or a very little more than apical fourth of discoidal cell; axillary lobe broadish and alula also well developed; squamae yellowish whitish, white-fringed; halteres yellowish, their knobs yellowish whitish. *Head* with the interocular space in front of ocellar tubercle in ♂ narrow, only about as broad as front ocellus and a little longer than tubercle; space on vertex in ♀ a very little more than 2 times distance between outer margins of posterior ocelli; frons slightly depressed anteriorly, the middle part free of hairs; antennae with joint 1 about twice length of 2, joint 3 elongate-conical, gradually tapering from broad base, but very slightly more so below, the apical part not slender; proboscis projecting a little beyond buccal cavity, shining in basal half, its labellar lobes shortish, oval, shorter than antennal joint 3. *Legs* without spines on front femora; middle ones with 1 spine anteriorly a little beyond middle; hind ones with about 3 or 4 spines on outer lower part and some apical ones above. The hypopygium of the single ♂-specimen has not been dissected out.

From a ♂ (much denuded) and a ♀ in the South African Museum.

Length of body: about $7\frac{1}{2}$ - $8\frac{1}{2}$ mm.

Length of wing: about $8\frac{1}{2}$ -9 mm.

Locality: Koup Karoo: Dikbome in the Laingsburg Div. (Zinn, April-May 1950).

This species can only be confused with *septopectera* which has a similar wing-infuscation. From the latter it, however, differs in having distinctly more conical third antennal joints which do not taper to a very slender part, in having no yellowish bristles in mesopleural tuft, no black hairs on sides of tergite 2, less dense black hair on antennae below, darker legs and slightly less extensive anterior infuscation in wings which does not encroach upon base of first posterior cell and cubital fork.

Lomatia stenometopa n. sp.

Body black; proboscis and femora very dark blackish brown, the tibiae slightly paler, more dark reddish brownish. *Vestiture* with the hairs on broad frontal part, to a large extent on antennae below, on sides of face and genae gleaming sericeous whitish; hair on basal part of frons, antennae above and some intermixed ones on antennae below black; hair on thorax, scutellum and abdomen above whitish, appearing more pale cream-coloured yellowish in certain lights; that on body below sericeous or snow-whitish; prealar and all other bristles on thorax pale yellowish; hair on sides of abdomen sericeous whitish on sides of tergites 1 and 2 and to a great extent on 3, but the pale ones on sides posteriorly gleaming more pale sericeous yellowish in certain lights; sides of tergite 3 with black intermixed hairs and more dense and tuft-like black ones on sides of 4-8; hair on venter white; pale scaling above, where indicated, gleaming pale sericeous yellowish; that on venter more sericeous whitish; that on legs predominantly whitish.

Wings strongly developed, for the greater part glassy hyaline, iridescent, the base, alula, costal cell, more than basal half of marginal cell, entire first basal cell and even extreme base of first posterior cell coffee-brownish; spot-like infusions present on apical cross veins of basal cells; veins dark brownish; basal comb moderately developed; first posterior cell tending to be slightly narrowed apically, but still broadly open, tending to be subequal in length to discoidal cell; the latter subacute to almost acute apically, its apical vein sinuous; middle cross vein at less than apical third to almost apical fourth of discoidal cell; alula rather well developed for this genus, its lobe at base of axillary lobe broad and rounded; axillary lobe also broadish and rounded at base; squamae opaquely whitish, yellowish-bordered, fringed with white hair; halteres yellowish, their knobs very pale yellowish. *Head* with the interocular space in front of ocellar tubercle in ♂ very narrow, only as broad as narrow front ocellus, the inner margins of eyes almost contiguous for quite a long distance, at least $1\frac{1}{2}$ times length of tubercle, the latter itself narrowish; frons rapidly broadening anteriorly, not visibly depressed anteriorly; face slightly convex medially; antennal joint 3 gradually narrowed



TEXT-FIG. 85. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia stenometopa* n. sp.

from a broadened base, thus club-shaped; proboscis projecting much beyond buccal cavity, with some distinct fine hairs below, its labellar lobes elongate, narrowish and pointed apically. *Legs* with 2 or 3 spines on middle femora; middle ones with rather dense white hairs on lower apical half; hind femora with about 6 or 7 spines from just before middle on outer lower part and about 2 apical ones above. *Hypopygium* as shown in text-fig. 85.

From 2 ♂♂ (one unfortunately without a head) in the South African Museum.

Length of body: about 8–11 mm.

Length of wing: about $8\frac{1}{2}$ – $11\frac{1}{2}$ mm.

Locality: Karoo: Murraysburg Dist. (Mus. Exp., March 1931) (type). Koup Karoo: Dikbome in Laingsburg Div. (Zinn, April–May 1950).

Recognized and distinguished from most other species by the very narrow and rather long interocular space in front of tubercle, narrowish ocellar tubercle and broad alula. From varieties of *pulchriceps* it may at once be distinguished by the broad alula, narrow interocular space, etc.

Lomatia pedunculata n. sp.

Body black; femora also dark or black, the tibiae slightly paler. *Vestiture* with the hairs on greater part of frons and on antennae above and below black; those on sides of frons anteriorly, intermixed ones on antennae below and those on sides of face and genae sericeous whitish; hair on body above mainly sericeous yellowish to yellowish, that in collar, propleural part, upper anterior part of mesopleural tuft more yellowish or golden and with numerous black hairs intermixed on thorax above, notopleural part, in mesopleural tuft and on scutellum; prealar, postalar and scutellar bristles also black; hair on body below, pleurae, hinder part of mesopleural tuft, sides at base of abdomen and on venter distinctly more whitish to sericeous white; hairs on sides of tergite 2 behind and densely intermixed on sides of 3–8 black; fine hairs on femora whitish; fine, hair-like scaling on thorax and scutellum above and those rather broadly across hind margins of tergites brassy yellowish; that on venter silvery whitish; scaling on legs yellowish, more whitish on lower surfaces of femora and hinder surfaces of tibiae. *Wings* rather narrowish, appearing as if stalked or pedunculate, greyish hyaline, but the base, costal cell, more than basal half of marginal cell, to a fainter extent basal half of first submarginal cell and more deeply the entire first basal cell infuscated yellowish brownish; very distinct and darker spot-like infuscations also present on cross veins and at base of third posterior cell; axillary lobe much reduced, very narrow, shortish, its hind margin only feebly curved; anal cell also very narrow, elongate; discoidal cell much longer than first posterior cell, its apical vein almost straight, slightly oblique; first posterior cell not sub-spindle-shaped, broadly open; middle cross vein very near end of discoidal cell, the distance between it and apex of cell being subequal to or a little shorter than apical cross vein of the cell; base of upper branch of cubital fork with a distinct appendix; squamae pallid, white-

fringed; halteres pallid, their knobs pale yellowish whitish. *Head* with the interocular space in front of ocellar tubercle in ♂ only a little wider than front ocellus; antennal joint 3 broadened bulb-like basally, more rapidly narrowed below, the slender part about twice length of bulb; proboscis projecting a little beyond buccal cavity, its labellar lobes much shorter than basal part, rather bluntly pointed apically; palps much longer than antennal joint 3. *Legs* with about 4 spines on anterior part of middle femora; hind ones with about 3 spines below in apical half, small spinelets along upper outer surface and a few longer apical ones above.

From a single ♂-specimen in the South African Museum which has not been dissected to show the hypopygium.

Length of body: about $8\frac{1}{2}$ mm.

Length of wing: about 9 mm.

Locality: Basutoland: Rafanyane Valley (Bevis, 2 Jan. 1947).

This species which belongs to the *oreophila*, *conocephala* and *septopectera*-series may be easily recognized by its pedunculate wings, markedly narrow axillary lobe and anal cell, broad first posterior cell and numerous intermixed black bristly hairs in mesopleural tuft and on thorax and scutellum above. In the latter respect it resembles *septopectera*, but is at once distinguished by its narrower, almost stalked wings, clearer basal half of first submarginal cell, more yellowish hair on body above, more bulb-shaped third antennal joints, etc. The reduced axillary lobe and anal cell, less spindle-shaped first posterior cell, black intermixed hairs on thorax and scutellum and in mesopleural tuft, broader transverse bands of scaling on tergites and paler yellowish hair on body above distinguish it from *oreophila* which it resembles superficially.

Section 2

In this section the wings are much clearer, less infuscated or tinged, usually predominantly hyaline; knobs of halteres pale; hair on sides of body, especially abdomen, similarly coloured in both sexes, not differentiated in ♂♂.

Lomatia stenoptera n. sp.

Body black; buccal rim, proboscis, palps and sometimes to a certain extent also facial part and third antennal joints castaneous brownish; legs castaneous brownish to dark piceous brownish, the tibiae, especially when denuded, paler, more yellowish. *Vestiture* with the hair rather dense, longish and shaggy, especially on sides of abdomen; hair on ocellar tubercle, on more than basal half of frons and along sides of frons anteriorly, predominantly on antennae above and below, numerous intermixed ones on sides of genae, especially along lower parts, longish ones discally and on sides of thorax in front of wings, prealar bristles and longish intermixed hairs on extreme sides below on tergites 2-7 (or 8) black; hair on frons in front, especially in ♂, conspicuously silvery or snow-whitish; a few intermixed pale yellowish or whitish ones present on

antennal joints 1 and 2 below; pale hairs, where present on sides of face and genae, gleaming yellowish; rest of hair on sides of thorax, pleurae and on abdomen above and on sides pale golden to deep golden yellowish, tinted even slightly orange golden on sides of body in ♂; postalar hairs and those on disc and hind borders of scutellum also golden yellowish; hair-like scaling on sides of head gleaming golden; that on disc of thorax and scutellum golden yellowish, more reddish golden antero-laterally and basally on thorax; scaling on abdomen above also golden, but more reddish golden across hind margin of tergite 1, dense only as narrow bands across hind margins of tergites; scaling on venter also yellowish, slightly paler than above; flattened scaling on legs predominantly yellowish, appearing more greyish yellowish to yellowish whitish on lower lateral part of femora. *Wings* rather narrowish, small, their bases narrow; membrane markedly wrinkled and microtrichiae along hind border relatively conspicuously developed; wing itself greyish hyaline or with a slight greyish subopacity evident, iridescent; base, costal cell and basal half of first basal cell in ♂ and in ♀ also apical half of first basal cell and basal half of marginal cell tinged subopaquely yellowish to yellowish brownish or even brownish; veins reddish brownish to dark reddish brown; basal comb vestigial; first posterior cell elongate, longer than discoidal cell, not narrowed apically, even appearing broader apically, its sides subparallel; middle cross vein at a point between a little less than apical third to a little more than apical fifth of discoidal cell; the latter subtruncate to subacute apically, its apical vein straight; anal cell not narrowed, but broadened and very broadly open apically; axillary lobe narrow, much reduced; alula vestigial; squamae opaquely yellowish, dark-bordered, fringed with yellowish hairs; halteres yellowish brownish, with pale yellowish knobs. *Head* with the interocular space in front of tubercle in ♂ only slightly narrower or about as broad as front part of tubercle; space on vertex in ♀ a little less than 2 times distance between posterior ocelli; frons brilliantly shining in ♀, distinctly transversely depressed anteriorly and to a certain extent also medially in front, less depressed in ♂, with the silvery hairs anteriorly dense and patch-like in ♂ and in two tufts in ♀; antennal joint 3 broadened bulb- or club-like basally, more so below; proboscis projecting beyond buccal cavity, slender, its labellar lobes narrow, elongate, pointed apically. *Legs* with 1 longish spine on anterior part of middle femora; hind ones with 1 spine on outer sub-apical part and about 2 shorter ones apically above; basal joint of front tarsi in ♀ with some longish, bristle-like spicules below towards apex. *Hypopygium* of ♂ with the basal parts rather narrowish, their outer apical angles not prominent; beaked apical joints relatively broadish; lateral struts somewhat pointed apically.

From 7 ♂♂ and 5 ♀♀ (holotype in the British Museum, allotype in the Commonwealth Institute and paratypes in the South African Museum).

Length of body: about $4\frac{1}{2}$ –6 mm.

Length of wing: about $4\frac{1}{2}$ –6 mm.

Locality: Natal: Weenen (Thomasset, March–April 1924 and Jan. 1925 (holotype)); Weenen (Thomasset, March 1925); Ingogo (Mackie, March 1932 (allotype)); Ingogo (Ogilvie, March 1932).

Characterized by its small size, golden hair, black hairs on disc of thorax, narrowish wings with wrinkled membrane, much reduced axillary lobe and alula and the rather broadly open anal cell. One ♂-paratype in the Union Agricultural Department was labelled as *pulchriceps* Lw. by Brunetti. This identification is however erroneous for the latter species has no black hairs on thorax above, has better developed wings, a less wrinkled membrane, a comparatively shorter first posterior cell, etc.

Lomatia thysanomela n. sp.

Body black; proboscis and legs dark castaneous brownish, the tibiae sometimes paler than femora, more reddish brownish. *Vestiture* with the hairs on basal part of frons, on each side of frons anteriorly in ♂, on antennae above, intermixed ones on antennae below in ♀, dense tufts on antennae below in ♂, hair on lower part of genae in both sexes, intermixed bristly hairs on thorax, especially sides, some stoutish prealar bristles, postalar and scutellar bristles and conspicuous dense tufts on sides of tergites 2–7 (or 8) black; black hair on sides of thorax in ♀ tending to be denser and more conspicuous than in ♂; dense hair anteriorly on frons silvery whitish, denser, less extensive, shorter and more tuft-like in ♂; antennae below with more numerous whitish or pale sericeous ones in ♀, whiter and more tuft-like ones on outer lower part in ♂; hair on upper parts of genae and intermixed ones on lower parts whitish or very pale sericeous yellowish in both sexes; hair on body above sericeous to golden yellowish; that on sides of abdomen and to a certain extent discally in ♂ tending to be more whitish; that on sides of tergite 1 in ♀ yellowish; that on pleurae only slightly paler than above and that on venter whitish; scaling above gleaming golden to deep golden yellowish, those transversely across abdomen in narrow bands; scaling on legs greyish yellowish to dull yellowish, sometimes appearing greyish whitish. *Wings* hyaline, iridescent, but with the base, costal cell, extreme base of marginal cell and basal half of first basal cell in ♂ and also basal half of marginal cell, base of first submarginal cell to a variable extent and entire first basal cell in ♀ yellowish brownish to brownish; indications of spot-like infusions present on apical cross veins of basal cells; first posterior cell shorter than discoidal cell, broadly open, only very slightly narrowed apically; middle cross vein at a little less than apical fourth to apical fifth of discoidal cell; the latter acute apically; alula and axillary lobe normally reduced; squamae subopaquely yellowish, fringed with very pale hairs; halteres yellowish brownish, with almost white knobs. *Head* with the interocular space in front of ocellar tubercle in ♂ about as wide as narrow front part of tubercle; space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli; frons visibly depressed anteriorly in ♀; antennal joint 3 bulb-shaped basally, the basal part below

more rounded, more rapidly narrowed; proboscis projecting much beyond buccal cavity, its lower surface finely striate, its labellar lobes narrowish, pointed apically. *Legs* with about 3-4 or 5 spines on anterior lower part of middle femora; hind ones with about 4-5 spines in apical half on lower outer part and 2 or 3 apical ones above; basal joint of front tarsi in ♀ with some longish bristly spicules towards its apex. *Hypopygium* of ♂ as shown in text-fig. 86.

From 4 ♂♂ and 3 ♀♀ (types in the South African Museum, paratypes in the Albany and Transvaal Museums).

Length of body: about $7\frac{1}{2}$ - $8\frac{1}{2}$ mm.

Length of wing: about 8-9 mm.

Locality: Eastern Cape: Resolution, Grahamstown in Albany Div. (Walton, Jan.-April 1928 (holotype)); Resolution (Walton, 1930) (allotype); Resolution (Walton, 14 March 1928); Fort Brown (Walton, 7 March 1930); Umdala, Fort Beaufort (S.A.M., March 1954).

Differs from the preceding species, to which it has some resemblance, in being slightly larger, in having more pale hairs on sides of face and genae, denser and more conspicuous black hairs on sides of abdomen, slightly more onion-shaped base of antennal joint 3, broader wings, etc.

Lomatia desmophora n. sp.

This species, which is only represented in the male sex in the collections before me, differs from ♂♂ of *thysanomela* which it superficially resembles in the following respects:

Vestiture with the hair on body similarly coloured, but with the patch of silvery white hairs on frons anteriorly distinctly larger, more tuft-like, more extensive; black hair on basal part of frons does not extend down sides of frons on each side; hair on lower outer part of antennal joint 1 distinctly tinted yellowish or more golden yellowish, not whitish; that on sides of genae predominantly yellowish or sericeous yellowish, without any black ones lower down as in *thysanomela*; hair on disc of thorax with distinctly more numerous black bristly ones and also with more numerous black hairs on disc of scutellum; hair on abdomen above distinctly tinted more sericeous yellowish or golden, the black ones on sides of tergites apparently less dense, sparser, less conspicuously tufty, sparser and less conspicuous on sides of tergites 2 and 3; pale hair on venter tinted more yellowish; scaling above denser, more reddish golden and concentrated in very much broader bands on abdomen above which occupy at least apical halves of tergites. *Wings* similarly infused with pale



TEXT-FIG. 86. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia thysanomela* n. sp.

yellowish brownish at base, costal cell and basal part of first basal cell; first posterior cell even more broadly open apically; discoidal cell distinctly more truncate apically, its apical vein more oblique; middle cross vein at about between apical sixth and seventh of discoidal cell; indications of spot-like infusions on apical cross veins of basal cells absent. *Legs* with about 2-4 spines on middle femora and about 3 on lower outer apical part of hind ones. *Hypopygium* (text-fig. 87) with the basal part rather narrowish, with rather longish and conspicuous hairs on their apical parts and their outer apical angles not very prominent; ramus on each side from basal parts to aedeagal complex produced spine-like along its anterior edge (see figure to the right).

From 2 ♂♂ (type in the Transvaal Museum).

Length of body: about 7-7½ mm.

Length of wing: about 7½-8 mm.

Locality: South-western Cape: Somerset West Strand (Brauns, 25 Nov. 1925).

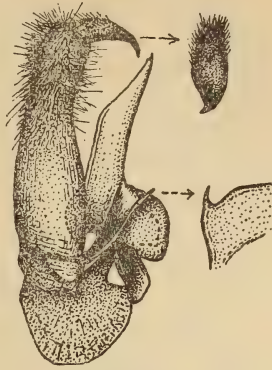
Lomatia latiuscula Lw.

(Loew, p. 208, *Dipt. Faun. Südaf.*, i, 1860; Bezzi, p. 116, *Ann. S. Afr.*

Mus., xviii, 1921.)

A number of specimens before me agree very well with Loew's description of this species. From Bezzi's brief references to *latiuscula* (p. 116, loc. cit.) it is impossible to state whether the specimen from Grahamstown to which he refers is the same species as this. The following supplementary description of *latiuscula* may be added to that of Loew:

Body black; apices of third antennal joints yellowish; proboscis and femora dark castaneous brownish; apical parts of femora and entire tibiae yellowish or yellowish brownish, the femora however sometimes entirely dark, sometimes tending to be nearly as pale as tibiae. *Vestiture* with the hair on front part of frons, on sides of antennae below in ♂ and almost entirely in ♀ and that on sides of face and genae sericeous whitish; that on basal half of frons, on antennae above, densely on inner lower parts of antennae in ♂ and more sparsely in ♀ black; that on body above predominantly pale sericeous yellowish or straw-coloured yellowish, more sericeous whitish on sides of abdomen basally; hair on upper hinder part of mesopleuron in form of a conspicuous whitish tuft; that on propleural part tinted pale sericeous yellowish and that on rest of pleurae more whitish; hair on venter also gleaming whitish; numerous intermixed bristly hairs on disc of thorax and on its sides, the prealar, postalar and scutellar bristles black; tufts of fairly dense black hairs also present on sides of tergites 2-7 (or 8), those on tergite 2 occupying only the apical part or half; scaling on body above brassy to golden yellowish; that on legs whitish to greyish yellowish,



TEXT-FIG. 87. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia desmophora* n. sp.

appearing more yellowish on paler tibiae. *Wings* predominantly glassy hyaline, iridescent, with the base, costal cell and along anterior basal part of first basal cell however yellowish to pale yellowish brownish in both sexes; veins brownish, slightly paler basally and in infuscated part; basal comb poorly developed; first posterior cell broadly open, sub-parallel-sided, about as long as, or only a little shorter than, discoidal cell; the latter subtruncate to subacute apically, its apical vein straight; middle cross vein varying in position from a little less than apical fifth to apical fourth of discoidal cell; alula and axillary lobe normally reduced, the latter slightly arcuately rounded posteriorly; squamae subopaquely yellowish, with a whitish fringe; halteres yellowish, with almost white knobs. *Head* with the interocular space in front of ocellar tubercle in ♂ narrowish, only a little broader than front ocellus; space on vertex in ♀ about or a little less than 2 times distance between outer margins of posterior ocelli; frons transversely depressed anteriorly; antennal joint 3 gradually narrowed from broad base, more leek- or bulb-shaped basally; proboscis projecting much beyond buccal cavity, its labellar lobes narrow and pointed. *Legs* usually with about 2-3, sometimes 4 or 5, spines on middle femora; hind ones usually with 3, but sometimes also 4 or 5, spines on outer apical part below and with about 2 apical ones above; basal joint of front tarsi in ♀ with some or a few longish bristly spicules below near apex. *Hypopygium* of ♂ as shown in text-fig. 88, with the basal parts rather narrowish.



TEXT-FIG. 88. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia latiuscula* Lw.

In the British, Transvaal, Albany and South African Museums.

Length of body: about 6-7 mm.

Length of wing: about 6-7½ mm.

Locality: Southern and eastern Cape and south-eastern Karoo.

Easily recognized by the whitish tuft in front and just below base of wings, the whitish hair on sides of first abdominal tergite, the black intermixed hairs on thorax above and the yellowish tibiae.

Lomatia berzeliaphila n. sp.

Body black; proboscis dark castaneous brownish; legs very dark, the tibiae tending to be slightly less dark than femora and more castaneous or brownish. *Vestiture* with the hair on greater part of frons, antennae above and densely below black; that anteriorly on frons, sides of face and on genae and the few intermixed pale hairs on inner lower part and also on sides of antennae sericeous yellowish to pale golden; the somewhat sparse hairs on disc of thorax, the prealar, postalar and scutellar bristles black; some intermixed hairs on thorax above, dense ones on sides and on mesopleuron and on pleurae sericeous yellow-

ish to pale golden; hair on abdomen above and on sides basally gleaming pale sericeous yellowish to slightly golden yellowish, but with the dense, tuft-like, intermixed ones on sides of tergites 2-8 black and also with black, erect, bristly ones on 4-8 above; hair on venter more whitish, more sericeous yellowish on sides below black tufts; hairs on coxae sericeous whitish; scaling on body above deep golden to reddish golden, with the transverse bands across hind margins of tergites fairly broad and conspicuous; scaling on legs appearing greyish whitish to greyish yellowish in certain lights. *Wings* glassy hyaline, strongly iridescent, with the base, costal cell and nearly basal half of first basal cell subopaquely yellowish to pale yellowish brownish; veins brownish to dark brownish; basal comb very poorly developed; second vein not very much recurved at end; first posterior cell very broadly open apically, slightly or sometimes distinctly longer than discoidal cell; the latter subtruncate apically, its apical vein straight; middle cross vein at nearly or a little less than apical fourth of discoidal cell; alula and axillary lobe very much reduced, the latter very narrow, almost equally broad throughout; squamae subopaquely yellowish, fringed with almost white hairs; halteres yellowish, with very pale knobs. *Head* with the interocular space in front ocellar tubercle in ♂ only a little narrower than tubercle; frons distinctly depressed anteriorly, especially in the middle; antennal joint 3 golf-driver-club-shaped at base, very rapidly narrowed from base below; proboscis projecting a little beyond buccal cavity, its labellar lobes tending to be shortish, broadish and ovoid. *Legs* with about 1 spine on anterior lower part of middle femora; hind ones with 2 spines on lower outer apical part and 2 apical ones above. *Hypopygium* of ♂ as shown in text-fig. 89, with the beaked apical joints relatively broadish and lateral struts narrowish, tending to be elongate.



TEXT-FIG. 89. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia berzelaphila* n. sp.

From 2 ♂♂ in the South African Museum.

Length of body: about 5-5½ mm.

Length of wing: about 6-6½ mm.

Locality: Southern Cape: Albertinia (Mus. Exp., Nov. 1938).

A smallish species characterized by its golf-driver-club-shaped third antennal joint, black hairs on disc of thorax, much reduced axillary lobe and alula, etc. The specimens were caught on the flower-clusters of a species of *Berzelia*.

Lomatia hylesina n. sp.

Body black; proboscis dark blackish brown; legs dark or blackish, the denuded tibiae however dark reddish brownish. *Vestiture* with the hair on front part of frons and sometimes some intermixed ones on genae sericeous whitish or silvery whitish; that on basal half of frons, antennae above and below and

predominantly or entirely on sides of face and genae black; hair on body above, pleurae and venter predominantly sericeous or snow-whitish; that on propleural part and to a certain extent on thorax above with a faint sericeous yellowish tint; intermixed bristly hairs on disc and especially sides of thorax, prealar, postalar and scutellar bristles, some intermixed bristly hairs in metanotal tuft and tufts on sides of tergites 2-8 black; scaling above pale sericeous yellowish, sometimes almost sericeous whitish in certain lights; that on legs greyish whitish to dull greyish yellowish. *Wings* glassy hyaline, iridescent, the base, costal cell and to a lesser extent base of first basal cell subopaquely pale yellowish brownish; veins dark brownish, the first vein and base of fifth slightly more yellowish; basal comb very poorly developed; first posterior cell very broadly open, usually slightly longer than discoidal cell; the latter subtruncate to almost truncate apically; middle cross vein at about a little less than apical fourth to nearly apical fifth of discoidal cell; anal cell broadly open apically; alula and axillary lobe normally reduced and to a lesser extent than in preceding species; squamae subopaquely yellowish, fringed with whitish hair; halteres yellowish brownish or yellowish, with whitish knobs. *Head* with the interocular space in front of ocellar tubercle in ♂ narrow, only a little broader than front ocellus, the inner margins of eyes gradually diverging anteriorly from this narrowest part; frons scarcely or not depressed anteriorly; face convex medially; antennal joint 3 gradually narrowed from broad base, more rapidly below and thus bulb- or club-shaped; proboscis projecting much beyond buccal cavity to at least beyond level of base of antennal joint 3, its labellar lobes narrow, pointed apically. *Legs* with about 1-3 spines on middle femora below; hind ones with about 2-3, usually 3, spines on outer lower apical part and about 2 apical ones above. *Hypopygium* of ♂ as shown in text-fig. 90.



TEXT-FIG. 90. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia hylesina* n. sp.

From 4 ♂♂ in the South African Museum.

Length of body: about 5-7 mm.

Length of wing: about $5\frac{1}{2}$ -7 mm.

Locality: Koup Karoo: Laingsburg Div. (Mus. Exp., Feb. 1938).

This species differs from *berzeliaphila* in having more whitish hair on frons in front, pleurae and abdomen, entirely black hair on antennae below, numerous intermixed black hairs on genae, some intermixed black ones in metanotal tuft, black hairs discally only on last tergite, a more club-shaped antennal joint 3, narrower interocular space, etc.

Lomatia flavifrons n. sp.

Body black; apices of third antennal joints yellowish; proboscis and legs dark blackish brown or castaneous brownish, the tibiae, when denuded, appearing

more reddish brownish. *Vestiture* with the hairs on greater part of frons, antennae above and below, sides of face and genae sericeous yellowish to golden yellowish; hair at base of frons to a variable extent black; that on body above and below predominantly sericeous yellowish to golden yellowish; that on pleurae and coxae tending to be slightly paler yellowish than above; prealar, postalar and scutellar bristles yellowish like rest of hair; dark, blackish brown, intermixed hairs present only on sides of tergites 5-8 or even on last tergite only in ♀; pale scaling above brassy to golden yellowish, fairly densely and uniformly distributed discally on abdomen, especially in ♀, that concentrated in bands across hind margins of tergites narrow, with apparently no black scaling above; scaling on venter also sericeous yellowish to golden; that on legs greyish yellowish to yellowish. *Wings* glassy hyaline, iridescent, the base, costal cell and basal half of first basal cell in ♂ and greater part of first basal cell in ♀ subopaquely yellowish; veins yellowish brownish to brown or even dark brownish; basal comb very poorly developed; first posterior cell scarcely narrowed apically, very broadly open, longer than discoidal cell; the latter subacute apically; middle cross vein at about from a little less than apical third to nearly apical fifth of discoidal cell; alula and axillary lobe slightly developed, the former with the lobe projecting over base of latter distinct and axillary lobe arcuately rounded; squamae subopaquely yellowish, dark-bordered, fringed with yellowish hairs; halteres yellowish, with very pale knobs. *Head* with the interocular space in front of ocellar tubercle in ♂ narrow, about as broad as narrow front part of tubercle; space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli; frons slightly depressed anteriorly; antennal joint 3 bulb-shaped at base; face slightly convex medially; proboscis projecting much beyond buccal cavity, its labellar lobes narrowish, pointed apically. *Legs* with from 2 to 5 spines on middle femora anteriorly below; hind ones with from 2 to 4 spines on outer lower apical part, some spinules on outer upper part and 1 or 2 apical ones above; basal joint of front tarsi in ♀ with longish, bristly spicules below. *Hypopygium* of ♂ as shown in text-fig. 91, with rather longish and conspicuous hairs on apical slender part of basal parts.



TEXT-FIG. 91. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia flavifrons* n. sp.

From 3 ♂♂ and 3 ♀♀ (holotype in the South African Museum and allotype in the Transvaal Museum).

Length of body: about 6-9 mm.

Length of wing: about 6-9 mm.

Locality: South-eastern Cape: Resolution, Grahamstown (Walton, Jan.-April 1938) (holotype); Grahamstown (Munro, 22 March 1921) (allotype); Umdala, Fort Beaufort (S.A.M., March 1954). Southern Karoo: Willowmore (Brauns, 5 April 1924); Bo-Kouga, Uniondale Dist. (S.A.M., March 1954).

Recognized by its predominantly yellowish or golden hair on head, antennae and on body above and below and sparse black hairs on sides of abdomen. The ♀-paratype from Willowmore differs from the typical ♀♀ in having no black hairs at base of frons or even on ocellar tubercle and in third antennal joints which tend to be slightly more gradually narrowed apically. It probably represents only a slight variety.

Lomatia albata Hesse

(Hesse, p. 172, *Ann. Transv. Mus.*, xvii, 1936.)

My original description of this species was based on a single ♂-specimen from Bechuanaland, but as another ♂ and 4 ♀♀ of the same species are present in the collections now before me a more comprehensive description of both sexes is given as follows:

Body black; proboscis and legs very dark blackish brown to black. *Vestiture* with the hairs on head in front and below, including antennae, and on body above and below predominantly sericeous whitish or silvery whitish; hair on thorax above in ♀ however tinted slightly pale sericeous yellowish in certain lights; prealar, postalar and scutellar bristles also whitish; hairs on ocellar tubercle, base or basal part of frons and in ♀ also some hairs on sides and around hind margin of last tergite black; scaling above pale sericeous yellowish, dense and conspicuous across hind margin of tergite 1 in ♀, almost absent in ♂; that on venter more sericeous whitish; that on legs white. *Wings* glassy hyaline, iridescent, with the base, costal cell and along anterior basal half of first basal cell subopaquely yellowish whitish to yellowish; veins dark brownish to dark blackish brown; basal comb almost wanting or only represented by whitish hairs; first posterior cell not narrowed, but very broadly open apically, usually distinctly longer than discoidal cell; the latter subacute to subtruncate apically; middle cross vein varying in position from about apical third to a little less than apical fourth of discoidal cell; alula normally reduced, but axillary lobe markedly developed, rounded and lobe-like, the wings thus broader across axillary lobe than in most other species; squamae opaquely whitish, yellowish-bordered, fringed with white hairs; halteres yellowish, with pale ivory yellowish knobs. *Head* with the interocular space in front of ocellar tubercle in ♂ very narrow, only about as broad as front ocellus, the inner margins of eyes rapidly diverging anteriorly; space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli; frons distinctly depressed anteriorly, especially in ♀; antennal joint 3 broadened golf-driver-club-shaped at base; face slightly convex



TEXT-FIG. 92. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia albata* Hesse.

medially; proboscis projecting much beyond buccal cavity, its labellar lobes narrow, elongate, pointed apically. *Legs* usually with 1 spine on middle femora below and with 2 on lower outer apical part of hind femora; basal joint of front tarsus in ♀ without any conspicuous, longish, bristly spicules below. *Hypopygium* of ♂ as shown in text-fig. 92.

Holotype in the Transvaal Museum and allotype in the Commonwealth Institute.

Length of body: about 5–7 mm.

Length of wing: about $5\frac{1}{2}$ – $7\frac{1}{3}$ mm.

Locality: Bechuanaland: Damara Pan (Vernay-Lang Kalahari Exp., 15–21 April 1930) (original ♂-type). Southern Rhodesia: Matopo Hills (Ogilvie, April 1932) (♀-type); Matopo Hills (Mackie, April 1932).

Easily recognized and distinguished from preceding species by the predominantly whitish hair, absence of much black hair on sides of abdomen and markedly broad axillary lobe.

Lomatia mozambica n. sp.

This clear-winged species resembles both *tenera* and *albata*, having certain characters in common with both, yet differing from each. The differences are, however, of such a nature that it cannot be placed as a varietal form of either. With *tenera*, as defined in this revision, the specimens agree in having black hairs on sides of tergites 5–7 (or 8), entirely sericeous whitish hairs on antennae below and similarly shaped third antennal joints, though the broad base bulges less below, thus more club-shaped than golf-driver-club-shaped. It however differs from *tenera* in having the interocular space in front of ocellar tubercle in ♂ distinctly broader, broader than front ocellus, slightly broader interocular space in ♀, a longer proboscis, with an elongate labella, black prealar bristles, pale yellowish hairs on sides of tergites 2–4 in both sexes, a very much broader and markedly broad axillary lobe and in ♀ longer, bristly spicules on basal joint of front tarsus below. From *albata* which it more closely resembles in its antennal, vestitural and wing-characters, it differs in having a stouter proboscis, distinctly broader interocular space in front of tubercle in ♂ (at least $1\frac{1}{2}$ times width of front ocellus), slightly broader interocular space in ♀ (a little more than twice width of tubercle), black hairs on antennae above, black prealar bristles, black hairs on sides of tergites 5–7 (or 8), yellowish hairs on sides of tergites 2–4 in ♂, broader and less narrowed first posterior cell, a more bent-up end of second vein, much narrower second posterior cell on hind margin and longer discoidal cell which is subequal in length to first posterior cell and not shorter as in *albata*.

From 2 ♂♂ and 1 ♀ (types in the South African Museum and paratype in the Museu Dr. Alvaro de Castro, Lourenço Marques).

Length of body: about $6\frac{1}{2}$ –9 mm.

Length of wing: about 7–9 mm.

Locality: Portuguese East Africa: Maputo (T. Dias, 17 April 1952) (types); Manhica (Dr. M. Ferreira, 12 April 1949).

Lomatia leucochlaena n. sp.

Body black; proboscis and denuded femora dark castaneous brownish or blackish brownish; tibiae paler, reddish brownish to pale yellowish brownish. *Vestiture* with the hairs on head, thorax, abdomen and body below sericeous or snow-whitish; some black hairs on ocellar tubercle and base of frons, but without any black or dark ones on antennae or sides of abdomen; prealar, postalar and scutellar bristles also pale or whitish; scaling above gleaming pale sericeous yellowish on thorax, but more whitish on abdomen; that on legs whitish to greyish white. *Wings* glassy hyaline, iridescent, the extreme base blackish brown, but the base, alula, costal cell and along anterior basal part of first basal cell subopaquely whitish; veins yellowish; basal comb very poorly developed, in form of sericeous whitish pubescent hairs; first posterior cell scarcely narrowed apically, very broadly open, distinctly longer than discoidal cell; the latter subtruncate apically; middle cross vein at a little less than apical third of discoidal cell; alula and axillary lobe normally reduced; squamae subopaquely whitish, white-fringed; halteres yellowish, with almost white knobs. *Head* with the interocular space on vertex in ♀ comparatively broad, quite or almost $2\frac{1}{2}$ times distance between outer margins of posterior ocelli; frons thus relatively broad, the inner margins of eyes only slightly and gradually diverging anteriorly, scarcely or only very slightly depressed anteriorly; face only very slightly convex medially; antennal joint 3 gradually narrowed apically from a broadened base; proboscis projecting only a little beyond buccal cavity, its labellar lobes narrowish, pointed apically. *Legs* with 1 spine on middle femora below and usually with 2 spines on outer lower apical part of hind ones; basal joint of front tarsus in ♀ with a few longish, bristly spicules below.

From 2 ♀♀ in the South African Museum.

Length of body: about $6-7\frac{1}{2}$ mm.

Length of wing: about 7-8 mm.

Locality: Koup Karoo: Laingsburg Div. (Mus. Exp., Feb. 1938) (type). Karoo: Victoria West Dist. (Mus. Exp., March 1931).

The paratype from Victoria West appears to be a slight variety which differs from the typical ♀ in being slightly larger, in having the hair above slightly more straw-coloured whitish, slightly more yellowish prealar and postalar bristles, some distinct dark hairs on sides of last tergite and slightly paler tibiae. This species is easily recognizable by its predominantly white hair and entire, or almost entire, absence of black hairs on sides of abdomen, yellowish brownish or reddish yellowish tibiae, and broad frons. From ♀♀ of *albata* it differs in not having antennal joint 3 golf-driver-club-shaped at base, in having a relatively broader interocular space and frons, a shallower frontal depression, paler tibiae, a more reduced axillary lobe, etc.

Lomatia albulata n. sp.

Body black; proboscis and legs dark blackish brown. *Vestiture* with the hairs on almost entire frons, antennae above and in ♂ numerous intermixed ones on antennae below black; some hairs medially on frons in front, numerous ones on antennae below and on sides of face and genae silvery whitish in ♂, but tinted more straw-coloured yellowish in ♀; that on antennae below in ♀ without any, or with only a few, dark hairs; hair on body in ♂ gleaming predominantly sericeous whitish above and below, that transversely in collar-region and the tufts of shortish bristly hairs on sides of tergites 2-8 black and hidden by dense white hair on sides of abdomen; hair in ♀-specimen very much denuded, but where still present, also sericeous whitish; scaling above whitish in ♂ and, where indicated, pale sericeous yellowish in ♀; that on venter sericeous whitish in both sexes; that on legs predominantly white. *Wings* glassy hyaline, iridescent, the base, alula, basal part of costal cell up to cross vein and along anterior basal part of first basal cell opaquely yellowish; veins very dark brownish; basal comb almost wanting; first posterior cell narrowish, subparallel-sided, broadly open apically, much longer than discoidal cell; the latter subtruncate to almost truncate apically; middle cross vein at about, or a little less than, apical third of discoidal cell; alula and axillary lobe normally reduced; squamae opaquely yellowish whitish, dark-bordered, fringed with white hair; halteres yellowish, with very pale knobs. *Head* with the interocular space in front of ocellar tubercle in ♂ very narrow, only about as broad as front ocellus; space on vertex in ♀ distinctly less than 2 times distance between outer margins of posterior ocelli; frons scarcely depressed in front, even in ♀; face not, or only very feebly, convex medially; antennal joint 3 broadened golf-driver-club-like at base, more rapidly narrowed from base below, the slender part relatively stoutish; proboscis projecting much beyond buccal cavity, its labellar lobes short, broad and oval, shorter than antennal joint 3; palps rather small, short, only a little more than half as long as antennal joint 3. *Legs* with 1 spine on middle femora below; hind ones with 2 or 3 spines on outer lower apical part and about 2 apical ones above; basal joint of front tarsi in ♀ without any bristly spicules below, but with the spicules fine and dense, more brush-like and much shorter than those on middle tarsi. *Hypopygium* of ♂ as shown in text-fig. 93, with the dorsal edge of basal strut produced into a rather long process.

From a ♂ and ♀ in the Transvaal Museum.

Length of body: about $5-5\frac{1}{2}$ mm.

Length of wing: about $5\frac{1}{2}-5\frac{2}{3}$ mm.

Locality: Transvaal: Pretoria (Munro, 1 Jan. 1916 (♂-type); 10 Nov. 1915 (♀-type)).



TEXT-FIG. 93. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia albulata* n. sp.

Easily recognizable by the predominantly white hair and ovate labellar lobes. From *albata* it differs in having black tufts on sides of tergites 2-7 (or 8), much narrower first posterior cell, much narrower and more reduced axillary lobe, ovate labellar lobes, etc. From *tenera* Lw. it may be distinguished by the presence of dark hairs on antennae below, much sparser hair on frons, black hairs on sides of tergites 2-7 (or 8), longer proboscis, etc.

Lomatia canescens n. sp.

Body black; proboscis and legs dark castaneous brownish, the tibiae tending to be paler, more reddish brownish. *Vestiture* with the hair on sides of frons in front, sides of face and genae, on antennae below in ♀, and intermixed hairs on antennae below gleaming sericeous whitish; that at base of frons and on antennae above and densely below (especially in ♂) black; that on rest of body predominantly sericeous whitish above and below; that across extreme front margin of thorax very dark brownish and that on sides of abdominal tergites 4-8 black; scaling above, where present, gleaming pale sericeous yellowish; that on venter much denser and white; that on legs white. *Wings* vitreous hyaline, iridescent, the base, alula and basal part of costal cell up to basal cross vein in both sexes subopaquely whitish to pale yellowish whitish; veins yellowish brownish to brownish; basal comb vestigial; first posterior cell not narrowed apically, its sides subparallel, subequal in length to, or a little longer than, discoidal cell; the latter subtruncate to truncate apically; middle cross vein at a little less than apical third to nearly apical fourth of discoidal cell; alula and axillary lobe normally reduced; squamae opaquely whitish, fringed with white hair; halteres pale yellowish, with almost white knobs. *Head* with the interocular space in ♂ in front of tubercle very narrow, only about as broad as front ocellus; space in ♀ about 2 times distance between outer margins of posterior ocelli; frons depressed in front, the depression free of hairs medially; face very slightly convex medially; antennal joint 3 gradually narrowed (even more so in ♀) from broad base, club-like basally; proboscis projecting slightly beyond buccal cavity, its labellar lobes narrowish, pointed apically. *Legs* with 1 or 2 spines on middle femora anteriorly below; hind ones with 2 or 3 spines on outer lower apical aspect and 1 or 2 apical spines above. *Hypopygium* of ♂ (text-fig. 94) with the beaked apical joints rather narrowish; lateral struts projecting horizontally; basal strut with its dorsal edge not produced much, and with a distinct triangular ledge-like or flange-like process on each side laterally near base (see ventral view on right-hand below).

From 2 ♂♂ and 1 denuded ♀ in the South African Museum.



TEXT-FIG. 94. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of basal strut of ♂ *Lomatia canescens* n. sp.

Length of body: about $6-6\frac{1}{2}$ mm.

Length of wing: about $6-6\frac{1}{2}$ mm.

Locality: South-West Africa: Kaoko Otavi in the Kaokoveld (Mus. Exp., March 1926) (holotype); Kamanjab (Mus. Exp., Jan. 1925) (allotype); Grootfontein in Damaraland (Lightfoot, Dec. 1918) (labelled by Bezzi as *tenera* Lw.).

This species is chiefly characterized by its predominantly white hair. From species, such as *tenera* and *albulata*, which are also predominantly white-haired, it differs in having more black hair on antennae below in ♂. From the former it differs also in having black hair on sides of tergite 4 and a more elongate or narrowish labella. From *albulata* it may further be distinguished by its more club-like third antennal joints and absence of black hair on sides of tergites 2 and 3 below.

Lomatia bembesiana n. sp.

A somewhat denuded specimen in the collections is very near *canescens*, but differs in the following respects: *Vestiture* with the hair on antennal joints 1 and 2 below entirely or predominantly black. *Wings* with the base, including alula, the entire costal cell and along anterior basal part of first basal cell opaquely yellowish; first posterior cell slightly, but distinctly, narrowed apically; discoidal cell distinctly more acute apically, its apical cross vein more parallel to hind border of wing; middle cross vein at only a little less than apical fourth of discoidal cell; alula and axillary lobe slightly more reduced, the latter thus appearing narrower; knobs of halteres deeper yellowish above. *Head* with the interocular space in ♂ distinctly broader, broader than front ocellus, quite as broad as length of antennal joint 2; frons less, or scarcely, depressed anteriorly; antennal joint 3 broadened more bulb-like basally. *Legs* with the spicules on tibiae, especially hind ones, slightly longer and more strongly developed. *Hypopygium* resembles that of *canescens* (cf. text-fig. 94), but the outer apical angles of basal parts distinctly more prominent and angularly produced; lateral struts slightly longer and the shallow indentation in dorsal margin of basal strut slightly deeper.

From a ♂ in the Transvaal Museum.

Length of body: about 7 mm.

Length of wing: about 7 mm.

Locality: Southern Rhodesia: Bembesi (Stevenson, 22 Dec. 1926).

Lomatia pulchriceps Lw.

(Loew, p. 206, *Dipt. Faun. Südaf.*, i, 1860; Bezzi, p. 148, *The Bombyliidae of the Ethiopian Region*, 1924.)

This species appears to be very widely distributed and to be fairly common in the non-arid parts of Southern Africa and, judging from the large number of specimens in the various collections before me, it is very variable in characters

such as the extent and intensity of the wing-infuscation, especially in ♀♀, the presence or absence of black prealar bristles and the extent to which black bristly hairs are present on antennae below and on sides of abdomen. There appears to be no doubt that several more or less distinct varietal or local forms are thus found in various parts of the country. As the specimens examined by me agree in essentials with the description given by Loew, there appears to be no doubt that they do represent Loew's species. A more comprehensive supplementary description of this species and notes on at least three distinct varietal forms are as follows:

Body black; proboscis and legs very dark castaneous brownish or blackish brown. *Vestiture* with the hairs on frons anteriorly, outer lower aspect of antennae, sides of face and predominantly or entirely on genae silvery or sericeous whitish, but sometimes with that on sides of antennae and face very slightly pale sericeous yellowish; hair on frons anteriorly conspicuous and appearing as silvery tufts; that at base of frons, on antennae above and, especially in ♂, also densely below and often some intermixed hairs on lower parts of genae in some ♂♂ and usually those on upper and outer parts of palps black; hair on body above and below rather dense and somewhat shaggy, predominantly sericeous yellowish, brassy yellowish to deep golden yellow; that on pleurae not or scarcely paler than above; that on venter may appear slightly paler in certain lights; that in mesopleural tuft sometimes appearing slightly deeper golden than rest of hair; at least two prealar bristles and conspicuous tufts on sides of tergites 2-7 (or 8) black, with these black tufts posteriorly and on last tergite very dense in some forms, but less dense in others; scaling above gleaming deep sericeous yellowish to deep golden yellowish, especially in ♀ where the concentrated scaling across hind margins of tergites is also denser, more conspicuous and broader, especially on sides; scaling on venter paler



TEXT-FIG. 95. Wing of ♀ *Lomatia pulchriceps* Lw.

sericeous yellowish or whitish; that on legs greyish whitish, greyish yellowish to dull yellowish, that on upper and anterior outer surfaces appearing more yellowish. *Wings* (text-fig. 95) very faintly to distinctly greyish hyaline, sometimes almost hyaline, iridescent, with usually the base, costal cell and more or less basal half of first basal cell in ♂ and in addition also basal half of marginal cell, to a lesser extent the base of first submarginal cell and entire or almost entire first basal cell in ♀ yellowish brownish to pale coffee-brownish; the

infusion in some ♂♂, however, also occupying base of marginal cell and entire first basal cell and in some ♀♀ fairly uniform and extensive, giving the wings a dimidiate appearance; veins brownish to dark brownish or even blackish brown, the first and fifth main veins, however, more yellowish; basal comb poorly developed; first posterior cell not or scarcely narrowed, broadly open, apically, its sides tending to be more subparallel in ♀ than in ♂, shorter than discoidal cell; the latter subtruncate, subacute, or even acute apically; middle cross vein varying in its position from a little less than apical third to apical sixth of discoidal cell; alula and axillary lobe normally reduced; squamae opaquely yellowish, dark-bordered, fringed with yellowish hair; halteres yellowish, with very pale knobs. *Head* with the interocular space in front of ocellar tubercle in ♂ about as broad as length of antennal joint 2, or twice as broad as front ocellus; space on vertex in ♀ a little less than, or about, 2 times distance between outer margins of posterior ocelli; frons shallowly depressed anteriorly, especially in ♀; face distinctly convex medially, appearing slightly subconically prominent apically; antennal joint 3 gradually narrowed from broad base, more so below, thus more or less club-shaped basally; proboscis appearing relatively long and slender, projecting much beyond buccal cavity, sometimes even to beyond antennae, its labellar lobes long, narrow, pointed, with minute spinules usually visible on base below and coarser ones on labella. *Legs* with from 2 to 4 spines on anterior lower part of middle femora; hind ones also with from 2 to 4, more frequently 3, spines on outer lower apical part and about 2 or 3 apical ones above; basal joint of front tarsi in ♀ with distinct longish bristle-like spicules below. *Hypopygium* of ♂ (text-fig. 96), usually with rather numerous and conspicuous longish hairs on neck region of basal parts; lateral struts well developed and broadish; basal strut with its dorsal edge sharply produced to a variable extent, rather more sharply in ♂♂ in which the entire second basal cell is infused, and with a small triangular lateral extension on each side of its base.

In the Commonwealth Institute of Entomology, Deutsches Entomologisches Institut, British, Transvaal, Albany, Durban and South African Museums, and in the Agricultural Department of Southern Rhodesia.

Length of body: about 6–10½ mm.

Length of wing: about 6–11 mm.

Locality: South-western Cape Province and eastwards along a broad coastal belt to Natal, Transvaal, Swaziland and Southern Rhodesia. There are no specimens in the collections from the Karoo, Namaqualand, Bushmanland and the Kalahari or Bechuanaland.

Apart from slight varietal forms which intergrade and merge into each other or into the typical form, there are at least three forms which deserve a distinct varietal status. These are:



TEXT-FIG. 96. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia pulchriceps* Lw.

Lomatia pulchriceps var. *lingnau* n.

This variety differs from the typical *pulchriceps* in having fewer black hairs on inner lower parts of antennal joints 1 and 2, usually more yellowishly tinted hair on sides of antennae and face, no black prealar bristles, relatively less dense and conspicuous black hair on sides of abdomen and with a tendency for sides of first posterior cell in wings to be even more subparallel.

From 11 ♂♂ and 4 ♀♀ (types in the Deutsches Entomologisches Institut, Berlin-Dahlem, paratypes in Commonwealth Institute, Transvaal and South African Museums).

Locality: Transvaal: Pretoria (Lingnau, 9 Jan. 1924) (♂-type); Pretoria (Lingnau, 31 Dec. 1925) (♀-type); Pretoria (Swierstra, 18 Dec. 1905); Pretoria (Swierstra, 20–24 March 1906); Pretoria (Munro, 4 March 1913 and 24 Jan. 1914); Pretoria (2 Jan. 1922); Nelspruit (Lawrence, Jan. 1939). Southern Rhodesia: Arcturus (Melle, 1916).

Lomatia pulchriceps var. *tinctella* n.

From typical ♀♀ of *pulchriceps* this variety differs in having the wings distinctly more infused with yellowish brownish, thus appearing much darker, the infusion occupying the base, costal cell and extending across to apex of first basal cell; rest of wings distinctly more tinged or more greyish brownish than in *pulchriceps*, the darker anterior basal infusion tending to merge imperceptibly into the less tinged apical and hinder parts. *Vestiture* with the hair predominantly golden yellowish; that on sides of antennae and face tinted yellowish; silvery tuft on frons in front conspicuously contrasting; prealar bristles all yellowish as in var. *lingnau*. This variety bears some resemblance to *infusata* Bezz. and *brunnitincta* n. sp. From the former it differs in being much smaller, in having silvery white hair on frons in front, wings which are not so uniformly brownish throughout and much shorter discoidal cell in relation to first posterior cell. From *brunnitincta* it may at once be distinguished by the proboscis which has an elongate labella, the less stout and finer styliform part of antennal joint 3 and the presence of black hairs also on sides of tergites 2–4.

From 2 ♀♀. (Type in the South African Museum.)

Locality: Natal: Sani Pass near Himeville (Bevis, 21 Dec. 1938) (type). Transvaal: Waterval-Bo (Dr. Breyer, Dec. 1898).

Lomatia pulchriceps var. *ogilviei* n.

On account of a few slight differences, which appear to be constant, some specimens from Basutoland and Natal may be considered as representing still another variety of *pulchriceps*. From the typical form of the latter they may at once be distinguished by the absence of black prealar bristles, the sparser, less dense and less conspicuous black hair on sides of tergites 2–7 (or 8), distinctly slightly paler and more whitish hair on head and body below, the more hyaline

wings and the longer proboscis on which the spinules below on basal part are not or scarcely evident. From *pulchriceps* var. *lingnau*i, which also has no black prealar bristles, they differ in having the pale hair on sides of antennae below, sides of face and on genae more silvery whitish; black hairs on sides of frons anteriorly not extending down to opposite level of bases of antennae and with more numerous black hairs on inner lower part of antennae; hair on body below, even in ♀, tending to be distinctly paler, more sericeous whitish, more contrasting with that on body above; black hair on sides of tergites 2-7 (or 8) slightly less dense or conspicuous; proboscis about 2.4-3 mm. long and thus comparatively longer, with the spinules on basal part below absent or much less evident; wings as in var. *lingnau*i, with only the base, costal cell, basal half of first basal cell in ♂ and in addition basal part of marginal cell and entire first basal cell in ♀ tinged subopaquely or opaquely yellowish to yellowish brownish; and the longish bristly spicules on basal joint of front tarsi in ♀ relatively shorter, the longest not as long as second tarsal joint. *Hypopygium* of ♂-paratype as shown in text-fig. 97, resembling that of *pulchriceps*, but with the produced dorsal edge of basal strut tending to be bifid; base of basal strut also with a triangular lateral extension on each side.

From 2 ♂♂ and 5 ♀♀ (holotype of variety in the South African Museum, allotype in the Durban Museum, and paratypes in the Commonwealth Institute of Entomology).

Length of body: about 8-10 mm.

Length of wing: about $8\frac{1}{2}$ -10 mm.

Locality: Basutoland: Mahlomolas (Bevis, 14 Feb. 1939 (types). Natal: National Park (Ogilvie and Mackie, March 1932).

Lomatia jansei n. sp.

A single ♂-specimen in the collections also resembles ♂♂ of *pulchriceps* Lw. and its varieties, especially forms without black prealar bristles. Compared with typical ♂♂ and varietal forms of *pulchriceps* the characters of this species are: *Body* black; proboscis and legs very dark castaneous brownish. *Vestiture* with the hairs on frons anteriorly in form of a smallish medial patch of short silvery white hair, much smaller than in *pulchriceps*; black hair on sides of frons longer than that of silvery patch; hair on antennae above and below entirely or predominantly black; that on lower parts of genae also black; hair on body above and below gleaming predominantly deep golden yellowish; all the prealar bristles yellowish; black hairs on sides of tergites 2-8 tending to be less dense and less conspicuous than in *pulchriceps*; scaling above deep golden yellowish, the bands across hind margins of tergites slightly broader, more conspicuous than in ♂ of *pulchriceps*; scaling on legs appearing greyish yellowish



TEXT-FIG. 97. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia pulchriceps* var. *ogilviei* n.

in certain lights, but graphite-like in others. *Wings* rather narrowish, distinctly greyish or greyish hyaline, iridescent, the base, costal cell, base of marginal cell and entire first basal cell subopaquely pale yellowish brownish; veins reddish brownish; basal comb almost wanting; first posterior cell not narrowed, but broadly open apically, its sides subparallel, distinctly longer than discoidal cell and thus longer than in *pulchriceps*; discoidal cell truncate apically; middle cross vein at about between apical third and apical fourth of discoidal cell; alula and axillary lobe more reduced than in *pulchriceps*, the latter lobe being narrow; squamae opaquely whitish, dark-bordered, fringed with yellowish hair; halteres yellowish, with very pale knobs. *Head* with the interocular space in front of tubercle in ♂ about as broad as length of antennal joint 2, or 2 times width of front ocellus; face convex medially; frons slightly depressed anteriorly; antennal joint 3 bulb-shaped basally; proboscis slender, projecting much beyond buccal cavity, labellar lobes long, slender, pointed apically. *Legs* with 1 spine on middle femora anteriorly below; hind femora with 2 spines on outer lower apical part and 2 apical ones above; tibiae with relatively fewer spicules than in *pulchriceps*. *Hypopygium* of ♂ very similar to that of *pulchriceps* (cf. text-fig. 96), but with the lateral struts relatively shorter.

From a ♂ in the Transvaal Museum.

Length of body: about 7 mm.

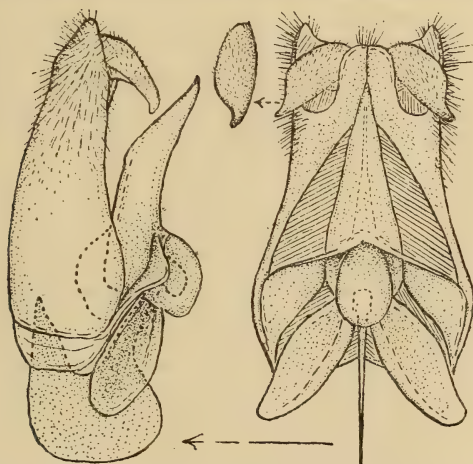
Length of wing: about 7 mm.

Locality: Southern Rhodesia: Umtali (Janse, Jan. 1918).

Lomatia oreoica n. sp.

Body black; proboscis and legs very dark blackish brown, the tibiae appearing more reddish brownish when denuded. *Vestiture* with the hairs on frons in front sericeous whitish to pale sericeous yellowish in certain lights; that on antennae below, sides of face and to a certain extent on genae deep sericeous yellowish to deep golden yellowish; that on antennae below usually with a tuft or a few black hairs on inner lower aspect; that on basal part of frons and on antennae above black; hair on body above and below predominantly sericeous yellowish to golden yellowish; that on sides of abdomen posteriorly, especially in ♂, appearing paler sericeous yellowish in certain lights; that on pleurae not or scarcely paler than on thorax above; that on venter distinctly paler sericeous yellowish or even more whitish; all the thoracic bristles yellowish or pale; relatively sparse intermixed black hairs present on sides of tergites 2-7 (or 8) these sometimes very sparse on tergites 2 and 3; scaling above sericeous yellowish, brassy yellowish to golden, especially in ♀; that on venter more whitish; that on legs greyish yellowish to dull ochreous yellowish on anterior upper surfaces of femora and on tibiae, and more whitish on hinder surfaces. *Wings* predominantly hyaline, iridescent, the base, costal cell and basal part of first basal cell in ♂ and in addition basal part of marginal cell and at least basal two-thirds of first basal cell in ♀ tinged opaquely pale yellowish brownish

to brown; veins yellowish brownish to dark brown; basal comb poorly developed; first posterior cell scarcely narrowed, broadly open apically, much shorter than discoidal cell; the latter subtruncate to truncate apically, sometimes even tending to be subacute; middle cross vein varying in position from a little less than apical fourth to apical sixth of discoidal cell; alula and axillary lobe relatively well developed, the lobe of the former distinct and quite as broad as knob of halteres and axillary lobe arcuately rounded; squamae opaquely yellowish whitish, dark-bordered, fringed with straw-coloured to sericeous yellowish hair; halteres yellowish, with very pale knobs. *Head* with the interocular space in front of tubercle in ♂ narrowish, only a little broader than front ocellus to nearly as broad as length of antennal joint 2; space on vertex in ♀ about 2, or a little more or less, times distance between outer margins of posterior ocelli; frons depressed in front, especially in ♀; face convex medially; antennal joint 3 broadened bulb- or club-like at base, more rapidly from base



TEXT-FIG. 98. Side and ventral views of hypopygium of ♂ *Lomatia oreoica* n. sp.

on lower side; proboscis projecting beyond buccal cavity, labellar lobes long, narrowish, pointed apically, with minute spinules visible in certain lights on basal part below. *Legs* with from 2 to 5 (in one specimen 7) spines on anterior lower part of middle femora; hind femora with about 3–5 spines on outer lower apical part and about 2 apical spines above; basal joint of front tarsi in ♀ with longish, bristly spicules below. *Hypopygium* of ♂ as shown in text-fig. 98.

From 7 ♂♂ and 5 ♀♀ (types in the South African Museum, paratypes in the Commonwealth Institute and in the Durban and Albany Museums).

Length of body: about 7–10 mm.

Length of wing: about $7\frac{1}{2}$ –10 mm.

Locality: Southern Karoo: Spitzkop in the Swartberge near Meiringspoort (Mus. Exp., Nov. 1935) (types). Western Karoo: Doring River (Mackie, 3 Nov. 1931); Matroosberg (Lightfoot, Jan. 1917). Nieuveland Karoo: Teekloof

in the Escarpment (Mus. Exp., Nov. 1935). South-western Cape: Table Mountain, Cape Town (Bevis, 2 Dec. 1921). Southern Cape: Tradouw Pass near Swellendam (Mus. Exp., Nov. 1925). South-eastern Cape: Grahamstown (Daly and Sole, March 1903).

This species, like *fulva*, *monticola*, *salticola* and *oreophila*, seems to frequent mountainous regions. It resembles *simplex* (Wied.) from which it may be distinguished by the presence of black hairs on inner lower part of antennal joints 1 and 2, much shorter palps and slightly more numerous black hairs on sides of tergites. From *pulchriceps* Lw. it may be distinguished by the presence of fewer black hairs on antennae below, fewer black hairs on sides of abdomen, pale prealar bristles, comparatively more developed and broader alula and axillary lobe and slightly narrower interocular space in ♂. The ♂-paratype from Grahamstown appears to represent a slight variety which differs from the typical ♂♂ in having the basal part of marginal cell and entire first basal cell also infused with yellowish like the base and costal cell, in having the first posterior cell more distinctly narrowed apically, the middle cross vein at a little more than apical fourth of discoidal cell, more slender and slightly longer proboscis, an interocular space quite as broad as length of antennal joint 2 and with distinctly more black hair on sides of abdomen.

Lomatia simplex (Wied.)

(Wiedemann, p. 305, *Aussereurop. Zweifl. Ins.*, i, 1828 (as *Anthrax*);
Loew, p. 207, *Dipt. Faun. Südaf.*, i, 1860; Bezzi, p. 114, *Ann. S. Afr. Mus.*, xviii, 1921, in part.)

The identity of this species is doubtful and there is no doubt that Bezzi (p. 114, loc. cit.) referred two distinct species to *simplex*. The difficulty of diagnosing this species is rendered more difficult owing to the fact that there are several species with which Loew was unacquainted, which resemble each other very closely and which can all be more or less made to agree with Wiedemann's brief notes and even Loew's more comprehensive description. The ♂-specimen labelled by Bigot as '*Anthrax albifrons*' and to which Bezzi refers (p. 114, loc. cit.) however agrees more with Loew's description than any of the other superficially very similar species described as *oreoica* n. sp., *leucopsis* n. sp. and *citraria*, in this memoir. This ♂-specimen, a somewhat denuded ♀-specimen in the British Museum and a series of ♂♂ and ♀♀ in the South African Museum are thus provisionally referred to *simplex*. The characters of the species are as follows:

Body black; proboscis and legs very dark reddish brownish to blackish brown, the tibiae tending to be slightly paler. *Vestiture* with the hairs on antennae below and on sides of face deep sericeous yellowish to deep golden yellowish, especially in ♀; that on frons anteriorly sericeous whitish to pale sericeous yellowish in ♂ in different lights, more distinctly sericeous yellowish in some ♀♀, without any black hairs on antennae below; hair on genae pale sericeous

yellowish to yellow in ♂, slightly deeper in ♀; that at base of frons and on each side blackish brown to black in ♂, that in ♀ confined to basal half also black; that on antennae above in both sexes very dark blackish brown or black; hair on body rather dense, golden to deep golden yellowish above, often more orange or reddish fulvous in front of wings and on sides of abdomen; that towards apex on sides of abdomen and on pleurae in some ♂♂ often gleaming slightly paler than above, scarcely so in ♀; that on venter slightly more whitish basally on each side; all the prealar, postalar and scutellar bristles yellowish; intermixed dark blackish brown to black bristly hairs on sides of tergites 2-7 (or 8), those on tergites 2 and 3 very few or absent, all the dark hairs almost hidden by the dense pale hair on sides of abdomen; scaling above gleaming golden and rather sparse, with fine black ones discally on tergites; that on venter denser, more whitish; that on legs greyish yellowish to yellow, appearing more greyish whitish on lower and hinder surfaces of femora. *Wings* predominantly glassy hyaline, iridescent, the base, costal cell and base of first basal cell in ♂ and in addition the bases of marginal and first submarginal cells and almost entire first basal cell in ♀ pale yellowish brownish; the posterior clear part in ♀ is not entirely hyaline but very faintly tinged yellowish up to level of apex of discoidal cell; veins reddish brownish to blackish brownish; basal comb moderately developed; first posterior cell broad, very slightly narrowed, though broadly open apically, considerably shorter than discoidal cell; the latter subacute or subtruncate apically; middle cross vein at about a little more than apical fourth to apical sixth of discoidal cell; alula and axillary lobe relatively well developed, the latter broad and arcuately rounded; squamae opaquely yellowish or yellowish whitish, dark-bordered, fringed with yellowish hair; halteres yellowish or pale yellowish brownish, with ivory yellowish knobs.

Head with the interocular space in front of tubercle in ♂ narrowish, about 2 times as broad as front ocellus; space on vertex in ♀ about, or a little more than, 2 times distance between outer margins of posterior ocelli; frons transversely depressed anteriorly, especially in ♀; face distinctly convex medially; antennal joint 3 broadened club-like basally, more rapidly narrowed from base to apex below; proboscis projecting beyond buccal cavity, its labellar lobes elongate, narrow, pointed apically; palps rather conspicuous, slightly longer than antennal joints 2 and 3, quite 1 mm. long. *Legs* sometimes with 1 spine on front femora below; middle femora with from 4 to 7 spines anteriorly below, two of them rather long; hind ones with 4 to 6 spines on outer lower apical half and about 2 apical spines above; basal joint of front tarsi in ♀ with some longish, bristly spicules below. *Hypopygium* of ♂ as shown in text-fig. 99, with a small triangular ledge-like lateral extension also present on each side of base of basal strut as in the *pulchriceps*-series.



TEXT-FIG. 99. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia simplex* (Wied.).

In the British and South African Museums.

Length of body: about $10\frac{1}{2}$ – $11\frac{1}{2}$ mm.

Length of wing: about 10–11 mm.

Locality: South-western Cape Mountains: Ceres and Worcester Divisions and also the Cape according to Loew.

Lomatia citraria Hesse

(Hesse, p. 396, *South African Animal Life*, ii, 1955.)

Body, including legs, black; thorax above and scutellum with slightly bluish reflections; proboscis dark blackish brown. *Vestiture* with the hairs on frons anteriorly, antennae below, sides of face and genae gleaming sericeous yellowish; that on antennae below without or with some black hairs especially in ♂, with deeper, more lemon yellowish tints in certain lights and that on frons, but especially genae, sometimes gleaming more whitish in certain lights; that on basal part of frons and on antennal joints 1 and 2 above black; that on body above and below dense, somewhat shaggy, gleaming predominantly sericeous yellowish or pale lemon yellowish; that on hinder part of mesopleural tuft, sternopleuron, coxae, on sides of abdomen posteriorly in ♂ especially and especially on venter appearing more whitish; prealar, postalar and scutellar bristles entirely pale like rest of hair; intermixed black bristly hairs or tufts present on sides of tergites 2–7 (or 8); pale scaling above gleaming sericeous yellowish or brassy yellowish, that concentrated in transverse rows across hind margins of tergites broader and more conspicuous in ♀; black or dark scaling in between shorter and finer, more evident in ♀; scaling on venter denser than above, more whitish; that on legs greyish yellowish, tinted slightly more yellowish on upper and anterior surfaces in certain lights. *Wings* vitreous hyaline, the iridescence very feeble, almost wanting, the extreme base black and the base, costal cell and basal part of first basal cell in ♂ and in addition almost entire first basal cell in ♀ opaquely yellowish whitish or yellowish; veins dark blackish brown and alula dark-bordered; basal comb poorly developed; first posterior cell sub-spindle-shaped, broad, slightly narrowed, though broadly open apically, very much shorter than discoidal cell; the latter subacute or subtruncate apically; middle cross vein at a little less than apical fifth to nearly apical sixth of discoidal cell; alula and axillary lobe slightly reduced, the projecting lobe of the former however distinct; squamae opaquely whitish, dark-bordered, fringed with whitish hairs; halteres pale yellowish brownish, with very pale yellowish or ivory yellowish knobs. *Head* with the interocular space in front of tubercle in ♂ a little narrower than tubercle or a little broader than length of antennal joint 2; space on vertex in ♀ a very little less or a very little broader than 2 times distance between outer margins of posterior ocelli; frons slightly depressed anteriorly; face slightly convex medially; antennal joint 3 gradually narrowed apically from broadened base, club-shaped basally;

proboscis projecting beyond buccal cavity, its labellar lobes elongate, narrowish, pointed apically; palps conspicuous, about 1 mm. long or quite as long as antennal joints 2 and 3 combined. *Legs* with about 2-9 conspicuous spines on lower anterior part of middle femora; hind ones with about 4-7 spines from just before middle to apex on lower outer part and with at least 2 apical spines above and numerous spinelets on outer apical half; basal joint of front tarsi in ♀ with longish, bristly spicules below. *Hypopygium* of ♂ as shown in text-fig. 100, with rather longish and conspicuous hairs on apical parts of basal parts; beaked apical joints tending to be narrowish; lateral struts shoe-horn-shaped; basal strut with well-developed lateral ledge-like extensions at base, and with apparently no, or only a feeble, indentation along its dorsal edge.

In the South African and Durban Museums and in the Zoological Institute of the University of Lund.

Length of body: about $9\frac{1}{2}$ - $12\frac{1}{2}$ mm.

Length of wing: about $9\frac{1}{2}$ - $11\frac{1}{2}$ mm.

Locality: North-eastern Cape, Basutoland and Orange Free State.

Easily recognized by the predominantly lemon yellowish hair on head in front and on body, broadish bands of pale scaling on abdomen in ♀, almost non-iridescent wings, rather long palps, and numerous spines on middle and hind femora. From *simplex*, as defined in this memoir, it differs in having pale lemon yellowish hair, more numerous or more conspicuous black hairs or tufts on sides of abdomen, almost non-iridescent wings, much darker veins, more narrowed first posterior cell, slightly narrower axillary lobe, and slightly broader interocular space in ♂. From *pulchriceps* and its various varieties it differs in being much larger, in having lemon yellowish or greenish yellow hairs on body above, sericeous yellowish or pale yellowish hairs on frons in front, antennae below and sides of face, a smaller black tuft or no black hairs on antennae below, pale prealar bristles, less dense black hairs on sides of abdomen, a shorter, more sub-spindle-shaped first posterior cell which is narrower apically, a markedly shorter discoidal cell and also a shorter fourth posterior cell.

Lomatia leucopsis n. sp.

(As *simplex* (Wied.) in part by Bezzi, p. 114, *Ann. S. Afr. Mus.*, xviii, 1921.)

In his revision of the South African Bombyliidae, Bezzi referred representatives of this species to *simplex* (Wied.). These specimens, however, do not agree with Loew's description (p. 207, *Dipt. Faun. Südaf.*, i, 1860) of Wiedemann's species or with the ♂-specimen, labelled by Bygot as '*Anthrax albifrons*', which



TEXT-FIG. 100. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia citraria* Hesse.

Bezzi also referred to *simplex* and which together with other ♂♂ and ♀♀ I have taken as representing the true *simplex* (see introductory notes to *simplex* in this revision). The chief characters and differences between this species and *simplex* are as follows:

Body black; proboscis and legs dark blackish brownish. *Vestiture* with the hairs on frons in front, densely on antennae below, sides of face and on genae predominantly sericeous whitish; that on antennae below not yellowish as in *simplex*, and with some, or even a tuft of black hairs on inner lower part; that on body above paler, gleaming more pale sericeous yellowish or straw-coloured yellowish and not golden, deep golden, or orange fulvous; that on pleurae, in posterior part of mesopleural tuft and on venter distinctly more contrastingly whitish; black hairs on sides of tergites 3-7 (or 8) much denser, more conspicuous and tuft-like; scaling above sericeous yellowish to pale golden in ♀; that on venter more whitish; that on legs predominantly greyish whitish, only feebly tinted yellowish in certain lights on upper anterior parts of femora. *Wings* slightly longer in relation to body than in *simplex*, glassy hyaline, iridescent, but in ♀ the clear part not entirely hyaline, very faintly tinged yellowish up to opposite end of discoidal cell, with the base, alula, costal cell and basal part of first basal cell in ♂ and in addition the basal half of marginal cell and entire first basal cell in ♀ subopaquely or opaquely pale yellowish brownish to brownish; veins yellowish brownish to dark brownish; basal comb moderately developed as in *simplex*; first posterior cell also broad, slightly narrowed, but broadly open apically and also much shorter than discoidal cell; the latter however distinctly more acute than in *simplex*, its apical cross vein distinctly more parallel to hind border of wings; middle cross vein varying in position from a little less than apical third to a little more than apical fifth of discoidal cell, thus farther away from apex of the latter than in *simplex*; alula and axillary lobe similarly developed; squamae opaquely yellowish whitish, dark-bordered, fringed with



TEXT-FIG. 101. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia leucopsis* n. sp.

whitish hair; halteres pale yellowish brownish, with very pale knobs. *Head* with the interocular space in front of ocellar tubercle in ♂, at narrowest part, only a little narrower than tubercle and comparatively a little broader than in *simplex*; space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli; frons depressed anteriorly; face convex medially; antennal joint 3 club-like basally, gradually narrowed apically, more so below; proboscis more slender than in *simplex*, projecting beyond buccal cavity, more distinctly and more conspicuously spinulated below, its labellar lobes elongate, narrow, pointed; palps markedly long, about 1 mm. long, but with predominantly dark hairs, not pale ones as in *simplex*. *Legs* with about 3-6 spines on middle femora anteriorly below; hind ones usually with 4 spines on outer lower apical part and about 2 apical spines above; basal joint

of front tarsi in ♀ with some longish, bristly spicules below. *Hypopygium* of ♂ as shown in text-fig. 101, with the lateral struts rather narrowish and without any ledge-like extension on each side of base of basal strut.

From 11 ♂♂ and 1 ♀ (types in the South African Museum, paratype in the Transvaal Museum).

Length of body: about 9–9½ mm.

Length of wing: about 9–10 mm.

Locality: Transvaal: Barberton (Edwards, Dec. 1911 (types); Nov. 1911); Nelspruit (Lawrence, Jan. 1939, and Breyer, Feb. 1918).

SECTION 3

Wings predominantly hyaline; knobs of halteres dark; hair on sides of body, especially abdomen, characteristically differentiated in ♂♂, there being a conspicuous tuft of snow-white or silvery white hairs on sides of tergites 1–2, or 1–3, or 1–4, or even on entire sides of abdomen which contrasts conspicuously with the dark or black ones on sides of remaining tergites and also with the sparser, shorter and often dissimilarly coloured ones of the ♀♀.

Lomatia kalaharica n. sp.

(Syn. = *mitis* Hesse, nec Loew, p. 171, *Ann. Transv. Mus.*, xvii, 1936.)

Two specimens were referred to *mitis* Lw. by me in a paper dealing with the Bombyliidae of Bechuanaland and the Kalahari. Since then I have examined a large number of species of *Lomatia* which are all referable to Loew's third group in which the wings are predominantly hyaline and which made the identification of Loew's two species *tenera* and *mitis* a difficult problem among such an assemblage. By a careful comparison with Loew's descriptions, I have, however, been able to identify both these two species. My previous determination of *mitis* thus becomes untenable and the above-mentioned specimens can no longer be retained in *mitis*. They are now referred to a separate species which is characterized as follows:

Body black; third antennal joints, proboscis and legs very dark reddish or blackish brownish. *Vestiture* with the hairs on entire frons, antennae above and below, sides of face in ♂ and at base of frons and to a great extent on antennae below in ♀ black; that on greater part of frons, especially on sides, in ♀, that on sides of face in ♀, numerous intermixed hairs on inner lower aspect of antennae in ♀ and a few on sides of face in ♂ sericeous or silvery whitish; that on genae predominantly whitish in ♀, but with numerous intermixed dark hairs in ♂; hair on thorax above in ♂ straw-coloured to pale sericeous yellowish; that in mesopleural tuft distinctly deeper yellowish; that across anterior margin of pronotum black, with at least one black prealar bristle among the pale hair; that on scutellum and densely on abdomen, especially sides, snow-whitish; that on pleurae yellowish, but white on venter; some black hairs present only on last tergite; hair on body in ♀ somewhat sparse and almost absent above, dense

on mesopleuron, pleurae and sides of abdomen, predominantly sericeous whitish; one prealar bristle blackish as in ♂; tufts of shortish dark blackish brown or black hair present on sides of tergites 4-7; sparse hairs on femora pale in both sexes; scaling above sparse and straw-coloured yellowish in ♂, much denser and gleaming pale sericeous yellowish to brassy yellowish in ♀, dense on tergite 1, becoming paler, more whitish and also denser on sides across hind margins of tergites; that on venter whitish in both sexes; that on legs appearing greyish to greyish whitish in certain lights, more graphite-like or dark in others. *Wings* vitreous hyaline, iridescent, the extreme base blackish brown, the base, alula, costal cell and to a certain extent along anterior basal part of first basal cell subopaquely yellowish whitish to yellowish; veins brownish to dark brownish; basal comb almost wanting; first posterior cell narrowish, only very slightly or scarcely narrowed apically but broadly open, its apical cross vein straight and oblique to hind border; middle cross vein at about or a little less than apical third of discoidal cell; alula and axillary lobe reduced and narrowish; squamae opaquely whitish, dark-bordered, fringed with white hair; halteres brownish, their knobs brownish above and pale below. *Head* with the interocular space in front of ocellar tubercle in ♂ very narrow, at narrowest part about as broad as front ocellus; space on vertex in ♀ a little less than 2 times distance between outer margins of posterior ocelli; frons depressed anteriorly,



TEXT-FIG. 102. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia kalaharica* n. sp.

the medial part anteriorly without hairs; face very slightly convex medially; antennal joint 3 gradually narrowed apically from broad base, slightly more so below, thus more leek-shaped than bulb-shaped at base; proboscis projecting beyond buccal cavity, its labellar lobes narrowish, pointed apically. *Legs* with 1 spine medially and anteriorly on middle femora below; hind ones with 1 or 2 spines on outer lower apical part; basal joint of front tarsi in ♀ without longish, bristle-like spicules below. *Hypopygium* of ♂ as shown in text-figure 102.

From a ♂ and ♀ in the Transvaal Museum.

Length of body: about $5\frac{1}{2}$ -6 mm.

Length of wing: about $5\frac{1}{2}$ -6 mm.

Locality: Bechuanaland: Metsimaklaba (V.-L. Kal. Exp., 7-12 March 1930).

The species is dimorphic in that the hair in the ♂ is longer and denser, that on sides of abdomen without any black tufts on sides of tergites 4-7 as in the ♀ and that on pleurae more yellowish than in ♀. This species is one of a series described below in which the ♂♂ differ from the ♀♀ in such characters as the colour and density of the hair. From *tenera* Lw., as defined in this revision, this species differs in having predominantly black hair on antennae below, black hair on frons in ♂, no black tufts on sides of abdomen in ♂ and black tufts

also on sides of tergite 4 in ♀, third antennal joints which are not golf-driver-club-shaped at base, more elongate and narrower labellar lobes, brownish-knobbed halteres, etc.

Lomatia albicincta n. sp.

Body black; proboscis and legs very dark blackish brown. *Vestiture* in ♂ with the hairs on frons, antennae above and below, sides of face and even on genae predominantly black, with intermixed hairs on antennae below, numerous ones on sides of face and on genae silvery whitish; hair on thorax above and on pleurae predominantly black or blackish brown; that in mesopleural tuft appearing more brownish in certain lights; fine erect hairs on scutellum whitish, the scutellar bristles, however, black; fine sparse hairs on abdomen above black on tergite 1, whitish on 2 and 3 and dark on 4-8; hair on sides of abdomen dense, in form of a characteristic patch of dense silvery white hair on sides of tergites 1-3 and black tufts on sides of 4-8 and also with some black hairs basally on each side of tergite 1; hairs on posterior coxae and on venter gleaming whitish; scaling above sericeous whitish on abdomen, more evident across hind margins of tergites 1-3 and on sides of the other tergites; that on venter denser, sericeous whitish; that on legs appearing greyish to greyish yellowish in certain lights. *Wings* in ♂ vitreous hyaline, iridescent, with the base, alula, basal part of costal cell up to cross vein opaquely yellowish brownish or brown; veins pale yellowish brownish to brown, the false vein in costal cell yellowish; basal comb rudimentary; first posterior cell broadish, not or scarcely narrowed apically, longer than discoidal cell; the latter subtruncate apically; middle cross vein at a point a little less than apical third or a little more than apical fourth of discoidal cell; alula and axillary lobe rather developed, the projecting lobe of the former quite distinct and the axillary lobe arcuately rounded; squamae opaquely brownish, with a dark fringe; halteres brownish, with the knobs chocolate brownish above. *Head* with the interocular space in front of tubercle in ♂ very narrow, only about as broad as front ocellus; frons rather rapidly broadening anteriorly, foveately depressed anteriorly; face slightly convex medially; antennal joint 3 broadened golf-driver-club-like basally; proboscis projecting beyond buccal cavity, its labellar lobes narrowish and short. *Legs* with 2 spines on lower outer apical part and 2 apically above on hind femora. *Hypopygium* like that of the following species *nigrescens* (cf. text-fig. 103).

From a ♂ in the South African Museum.

Length of body: about $5\frac{1}{2}$ mm.

Length of wing: about 5 mm.

Locality: Koup Karoo: Laingsburg Div. (Mus. Exp., Feb. 1938).

Easily recognized by the predominantly black or dark hair on frons, thorax and pleurae and the contrasting silvery white patch on sides of abdomen. From ♂♂ of *nigrescens* Ric. this species differs in having entirely black hair on thorax above, black hairs also at base on sides of tergite 1, relatively broader

axillary lobe, etc. This and the following series of species belong to a section which is characterized by the presence of a conspicuous patch of silvery white hair on sides of tergites 1-3 or 1-4 in ♂♂ especially.

Lomatia nigrescens Ric.

(Ricardo, p. 92, *Ann. Mag. Nat. Hist.* (7), vii, 1901.)

There is no doubt that the series of specimens before me represent Ricardo's species which was described from two ♂♂ from Pretoria. The species appears to be very variable as far as the colour of the hair on the head, in the mesopleural tuft, on the pleurae and on sides of abdomen is concerned. It is also evident that transitional forms are to be found between specimens which I take to be typical and others which represent distinct varieties. At least two distinct varieties deviate so much from the typical Pretorian form that they are described below under separate varietal names. Certain specimens from Pretoria which agree in essentials with Ricardo's brief description may be taken as the typical form and are characterized as follows:

Body black; proboscis and legs dark blackish brown, the tibiae tending to be more reddish brownish when denuded. *Vestiture* with the hairs on greater part of frons in ♂, on more than basal half of frons in ♀, on antennae above and entirely or predominantly below, on sides of face and genae in ♂ black; that on each side of frons anteriorly in ♀, a small frontal tuft on each side anteriorly just above level of antennae in ♂, a conspicuous tuft on inner aspect of antennae in both sexes, the hair on sides of face in ♀, and sometimes some intermixed hairs on sides of face in some ♂♂ and that on genae in ♀ silvery whitish; that on thorax in ♂ black in collar-region, straw-coloured whitish to yellowish on thorax in front, antero-laterally and conspicuously in the upper and hinder parts of mesopleural tuft; sparse hairs on disc of thorax also pale or whitish; two prealar bristles, hair on pleurae, propleurae, prosternum and to a certain extent on coxae black; that on scutellum whitish; that in metanotal tuft white and black; that on posterior coxae whitish; that on sides of abdomen dense and shaggy, in form of a dense conspicuous patch of silvery white hair on sides of tergites 1-3 and black or blackish brown tufts on sides of the rest of the tergites; sparse hairs on abdomen above predominantly whitish; hair on body in ♀ sparse above, that in collar-region black, a few intermixed bristly hairs on each side of thorax and the prealar bristles also black; sparse hairs on disc of thorax and scutellum whitish; that in mesopleural tuft dense and silvery whitish; that on propleural and pleural parts silvery or sericeous whitish; that on front coxae with some dark or black hairs; that on sides of abdomen shorter than in ♂, but also silvery whitish on sides of tergites 1-3 and black on 4-7; hair on venter in both sexes silvery whitish; scaling above poorly developed in ♂, pale sericeous whitish or yellowish; that on abdomen in ♀ predominantly black, the pale sericeous yellowish ones concentrated across hind margins of tergites, conspicuous on tergite 1 and on sides of others; that on venter whitish, but poorly

developed; that on legs usually appearing dark, gleaming graphite-like or greyish to greyish yellowish. *Wings* vitreous hyaline, iridescent, the extreme base black, the base, alula, base of costal cell up to cross vein and the part of costal cell posterior to false vein in ♂ and in addition also anterior basal part of first basal cell in ♀ opaquely yellowish whitish to yellowish; veins yellowish brownish to dark brownish, the false vein in costal cell yellowish; basal comb vestigial; first posterior cell broad, not or scarcely narrowed apically, a little longer than discoidal cell; the latter subtruncate to almost subacute apically; middle cross vein varying in position from a little less than apical third to almost apical fourth of discoidal cell; alula and axillary lobe normally reduced, the latter slightly narrower in ♀ than in ♂; squamae opaquely dirty whitish, dark-bordered, white-fringed in both sexes; halteres brownish, the knobs chocolate brownish above. *Head* with the interocular space in front of ocellar tubercle in ♂ very narrow, only about as broad as front ocellus, the inner margins of eyes rapidly diverging anteriorly; space on vertex in ♀ about, or a little less or more than, 2 times distance between outer margins of posterior ocelli; frons foveately depressed anteriorly, slightly more so in ♂, the hairs anteriorly confined to sides; face convex medially; antennal joint 3 more or less golf-driver-club-like basally, the base below prominent and the styliform part rather stoutish; proboscis projecting beyond buccal cavity, its labellar lobes elongate, narrowish, pointed apically. *Legs* usually with 1 spine on middle femora below; hind ones usually with 2 spines on outer lower apical part and 2 spines above; basal joint of front tarsi in ♀ without any long, bristly spicules below, the spicules finer than on middle tarsi. *Hypopygium* of ♂ as shown in text-fig. 103, with the base of each part not distinctly marked off by a distinct demarcation; lateral struts rather longish and projecting more horizontally than shown in figure; basal strut with its projecting dorsal edge truncated apically and with a small lateral ledge-like triangular extension on each side basally.

In the Transvaal and South African Museums.

Length of body: about 6–7½ mm.

Length of wing: about 6–7½ mm.

Locality: Transvaal: Pretoria.

Easily recognized by the predominantly black hair on frons, sides of face and genae in ♂, patch of silvery white hair on sides of abdomen and tuft of silvery white hair on inner side of antennae. With similarly-patterned species described in this revision, it can only be confused with *melanthia*, *albizonata*, *plocamoleuca* and *albicincta*. From *melanthia* it may be distinguished by the longer and more slender proboscis, narrower and more pointed labella, the presence of pale hair on thorax above, the presence of a silvery tuft between antennae, white squamal fringe, etc. From *albizonata* it differs in having predominantly black hair on



TEXT-FIG. 103. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia nigrescens* Ric.

frons, antennae below and on face, darker hair on pleurae, white squamal fringe, etc. From *plocamoleuca* it differs by the sparse dark hair on frons, whitish erect hairs on body above, dark hair on pleurae, etc. From *albicincta* the ♂ differs in having pale hairs on thorax above, conspicuous silvery white hairs between antennae, white squamal fringe, etc. One ♂-specimen, presumably from Pretoria, differs from the typical ♂♂ in having the white hairs on sides of abdomen present on sides of tergites 1-4 instead of on 1-3 and white hairs also on sides of face and genae.

Distinct varietal forms are:

Lomatia nigrescens var. *aterrima* n.

This variety differs from typical forms of *nigrescens* in having the entire pleurae black-haired and the mesopleural tuft black in ♂, the black hair also extending on each side of thorax in front and above wings, only the hair on thorax above and on scutellum being whitish; the rest of the hair on abdomen is similar to that of the typical form. The ♀ on the other hand has the same sericeous whitish or silvery hair on head, mesopleurae and pleurae as in typical ♀, but differs in having more numerous intermixed black bristly hairs anteriorly, antero-laterally and on sides of thorax.

From 3 ♂♂ and 2 ♀♀ (types in the South African Museum and paratypes in the Transvaal Museum).

Locality: Eastern Transvaal: Nelspruit (Lawrence, Jan. 1939 (types); Nelspruit (Breyer, Feb. 1918).

Lomatia nigrescens var. *bulawayoënsis* n.

(Syn. = *tenera* Bezzi, nec Loew, p. 116, *Ann. S. Afr. Mus.*, xviii, 1921.)

Representatives of this form deviate from the typical form and var. *aterrima* in having the black hair on head in ♂ distinctly less extensive, a more extensive and denser white tuft on inner side of antennae, some intermixed hairs on antennae below, numerous intermixed hairs on sides of face and upper part of genae also being silvery whitish; hair on thorax above, in mesopleural tuft, on entire pleurae and coxae in ♂ predominantly sericeous whitish, without any, or with only a few inconspicuous, dark hairs on lower parts of mesopleuron and with even the hairs in metanotal tuft sometimes entirely pale; hair on thorax in ♀, excepting black prealar bristles, without any intermixed black hairs antero-laterally and laterally, that on thorax above, in mesopleural tuft and on entire pleurae being entirely sericeous whitish; that on sides of abdomen in both sexes differing from the typical form in having a conspicuous patch of silvery white hair on sides of tergites 1-4 and not only on sides of 1-3, and the blackish tufts confined to sides of 5-7 (or 8); proboscis a little shorter. The hypopygium of ♂ differs from that of *nigrescens* (cf. text-fig. 103) in having the lateral struts slightly broader and the dorsal projecting edge of the basal strut more acute and less truncated. In all other respects this variety agrees with the typical form.

From 7 ♂♂ and 1 ♀ (holotype of this variety in the South African Museum, the allotype in the Commonwealth Institute and paratypes in the Rhodesian and Transvaal Museums).

Length of body: about $5-6\frac{1}{2}$ mm.

Length of wing: about $5\frac{1}{2}-7$ mm.

Locality: Southern Rhodesia: Bulawayo (Rhod. Mus., 21 Dec. 1911 (holotype) and 7 Feb. 1923 (allotype)); Bulawayo (Stevenson, 8 Dec. 1924, 10 Dec. 1924, 19 Dec. 1924); Hope Fountain (Rhod. Mus., 13 Dec. 1921).

A ♂-specimen in the South African Museum, from Kranskop in Natal, differs from the more typical forms of this variety in having the white patch on sides of abdomen on sides of tergites 1-3 as in the typical *nigrescens*. The holotype was wrongly determined and labelled as *tenera* Lw. by Bezzi (p. 116, loc. cit.). From *tenera*, according to Loew's description, it differs in not having distinct yellowish or yellowish brownish hair anteriorly on thorax and no pale sericeous yellowish hairs on scutellum and abdomen above.

Lomatia consors n. sp.

Body black; buccal rim, proboscis and legs dark castaneous brownish, the tibiae slightly paler brownish. *Vestiture* in ♀ with the hairs on sides of front half of frons, antennae below, sides of face and genae silvery whitish; that at base of frons and on antennae above black; that on disc of thorax very sparse and whitish, but with intermixed black hairs anteriorly, black hairs in collar-region, numerous black bristly hairs intermixed with whitish ones on sides in front of wings, black prealar bristles and some black postalar bristles; mesopleural tuft and hair on pleurae gleaming sericeous whitish; that on abdomen gleaming sericeous whitish on sides of tergites 1-3 and dark blackish brown on sides of 4-7; scaling above gleaming sericeous yellowish; that across hind margins of tergites, especially tergite 1, more brassy yellowish in certain lights; that on venter more whitish; that on legs appearing greyish, more whitish on upper surfaces of femora, especially hind ones. *Wings* in ♀ vitreous hyaline, iridescent, the base, alula, costal cell and along anterior basal part of first basal cell opaquely yellowish whitish; veins yellowish brownish to brown; basal comb vestigial; first posterior cell not narrowed, but very broadly open apically, very much longer than discoidal cell; the latter subtruncate apically; middle cross vein at about midway between apical third and apical fourth of discoidal cell; alula and axillary lobe normally reduced; squamae opaquely dirty whitish, dark-bordered, fringed with white hairs; halteres brownish, the knobs chocolate brownish above. *Head* with the interocular space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli; indentation in hind margin of eyes rather angular; frons rather deeply foveately depressed medially in front, the hairs anteriorly confined to sides; face slightly convex medially; antennal joint 3 sometimes rather shortish, gradually narrowed apically from broad base, more rapidly below, its styliform part rather short or stoutish, giving the joint

a ham-shaped appearance; proboscis projecting beyond buccal cavity, its labellar lobes narrowish, pointed apically. *Legs* with 1 spine medially and anteriorly below on middle femora; hind ones without any spines in the specimens before me, but with about 2 apical spines above; basal joint of front tarsi in ♀ without any distinct, longish, bristly spicules below.

From 2 ♀♀ (type in the South African Museum and paratype in the Commonwealth Institute).

Length of body: about $5\frac{1}{2}$ mm.

Length of wing: about $5\frac{1}{2}$ mm.

Locality: Basutoland; Mamathes (Guillarmod, 16 Feb. 1952) (type). North-eastern Cape Province: Lady Grey (Nel, 30 Dec. 1924).

These ♀♀ very closely resemble ♀♀ of *nigrescens* or its varieties and may even prove to be only another distinct varietal form of that species. They differ, however, in not having any dense black hairs on antennae below, more pale hairs on sides of thorax just above wings and relatively shorter third antennal joints in which the styliform part is shorter or stouter and the base less rapidly broadened below.

Lomatia compsocoma n. sp.

Body black; buccal cavity castaneous brownish; proboscis and femora dark blackish brown, the tibiae usually paler, more yellowish brownish or reddish brownish. *Vestiture* with the hairs on frons in front, antennae above and below, sides of face and genae entirely or predominantly sericeous whitish to very pale sericeous yellowish in certain lights; that on basal part of frons, antennae above in some cases and sometimes a few intermixed hairs on antennae below and on lower parts of genae black; hair on body in ♂ straw-coloured whitish or yellowish to pale sericeous yellowish on thorax and scutellum above, usually more yellowish on anterior part; mesopleural tuft whitish or straw-coloured to distinctly yellowish; bristly hairs in collar-region black; two prealar bristles black; hair on pleurae straw-coloured whitish to very pale sericeous yellowish in certain lights; that in propleural part sometimes appearing more yellowish and sometimes with some intermixed dark hairs on prosternal part; fine erect hairs on abdomen above usually whitish, sometimes gleaming straw-coloured; hair on sides of abdomen in form of a characteristic, conspicuous and contrasting patch of silvery white hair on sides of tergites 1-3 and black or dark blackish brown tufts on sides of 4-8; hairs on venter gleaming sericeous whitish; hair on body in ♀ less dense than in ♂, very sparse above, gleaming predominantly sericeous whitish to straw-coloured yellowish; hairs on disc of thorax sparse, those in mesopleural tuft usually conspicuous and sericeous whitish; two prealar bristles and sometimes some collar hairs black; hair on pleurae sericeous whitish; that on abdomen conspicuously snow-whitish on sides of tergites 1-3 and dark blackish brown to black on sides of 4-7; pale scaling above gleaming sericeous yellowish in ♂ to sericeous yellowish or brassy yellowish in ♀, the transverse bands broadened on sides; rest of scaling on tergites in ♀ black; scaling

on venter sericeous yellowish; that on legs appearing greyish to greyish yellowish, gleaming whitish or satin-like on upper surfaces of femora. *Wings* vitreous hyaline, iridescent, the extreme base blackish, the base, alula, base of costal cell up to cross vein, posterior to false vein in costal cell and to a certain extent along anterior basal part of first basal cell opaquely yellowish whitish to yellowish; veins yellowish brownish to dark brownish, the first main vein and basal parts of others more yellowish or yellowish reddish; basal comb vestigial; first posterior cell broadish, usually not narrowed, but broadly open apically, its sides tending to be subparallel, either subequal in length to, or a little longer than, discoidal cell; the latter subtruncate to truncate apically; middle cross vein varying in position from about apical third to apical fifth of discoidal cell, more frequently a little less than apical third; alula and axillary lobe normally reduced, the lobe of the former at base of latter small but distinct; squamae opaquely whitish, dark-bordered, fringed with white hair; halteres brown, their knobs chocolate brownish above. *Head* with the interocular space in front of ocellar tubercle in ♂ very narrow, only about as broad as front ocellus or a little broader, the inner margins of eyes rapidly diverging anteriorly; space on vertex in ♀ about, or a little more than, 2 times distance between outer margins of posterior ocelli; frons depressed medially in front, even more so in ♂, the medial depression or anterior part free of hairs; face slightly convex medially; antennal joint 3 broadened bulb-like or almost golf-driver-club-like basally below, the lower basal part more bulging than above; proboscis projecting beyond buccal cavity, minutely spinulated below, its labellar lobes elongate, narrow, pointed apically. *Legs* usually with 1 spine medially and anteriorly on middle femora below; hind ones with 2 or 3 spines on outer lower apical part; middle femora with the fine hairs on hinder part rather conspicuously and densely developed; middle tibiae with the row of longish spicules on outer or hinder part more conspicuously developed than in most species; basal joint of front tarsi in ♀ without any distinct, longish, bristle-like spicules below. *Hypopygium* of ♂ as shown in text-fig. 104, with the dorsal edge of basal strut rather prominently and sharply produced and with a triangular ledge-like extension on each side basally.

From 15 ♂♂ and 4 ♀♀ (types in the South African Museum, paratypes in the Commonwealth Institute, British and Transvaal Museums).

Length of body: about 6–8 mm.

Length of wing: about $6\frac{1}{2}$ –8 mm.

Locality: Namaqualand: Bowesdoip (Mus. Exp., Nov. 1931) (types). North-eastern Karoo: Aliwal North (Turner, Dec. 1922); Lady Grey (Nel, 30 Dec. 1924). Transvaal: Pretoria (Munro, 21 Oct. 1914–17, and Swierstra, 21 Nov. 1915).



TEXT-FIG. 104. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia compsocoma* n. sp.

Easily recognized by the pale hair on antennae below, the straw-coloured whitish or yellowish hair on thorax antero-laterally and on pleurae in ♂, the two black prealar bristles, conspicuous silvery whitish patch on sides of abdomen, conspicuous hairs on middle femora and spicules on middle tibiae. The ♀ differs from ♀ of *nigrescens* var. *bulawayoënsis* in being slightly larger, in having predominantly or entirely silvery whitish hair on frons in front, on antennae below, sides of face and genae, slightly more yellowish-tinted hair in mesopleural tuft, white hair only on sides of tergites 1-3, no black hairs on sides of thorax, a broader frontal space across antennae, etc. From the ♀ of *consors* the ♀ differs in not having any black hairs on sides antero-laterally on thorax, relatively shorter first posterior cell and more conspicuous and denser spicules on middle tibiae. The species appears to be slightly variable and the ♂-paratypes from Pretoria have more black hairs in collar-region and on prosternal parts, distinctly more yellowish hair on pleurae and in mesopleural tuft, and, in one specimen, even numerous black hairs on antennae below.

Lomatia albizonata n. sp.

Body black; buccal cavity brownish to dark brownish; proboscis dark castaneous brownish to blackish brown; legs dark chocolate-brownish to blackish brown, the tibiae usually slightly paler and more sienna-brownish than femora. *Vestiture* with the hairs on almost entire frons in ♂, anterior part of frons in ♀, antennae above and below, sides of face and genae sericeous whitish in both sexes; that on ocellar tubercle and in ♀ on basal half of frons black; that on thorax and scutellum in ♂ mostly yellowish brownish to brownish golden, with dense intermixed black hairs discally above, in mesopleural tuft and on prosternal part; that on thorax in ♀ gleaming sericeous or silvery whitish in mesopleural tuft in front of wing-bases and sericeous yellowish to golden on propleural part and to a lesser extent on coxae; that on disc above mostly composed of sparse black bristly hairs; metanotal tuft in ♂ yellowish brownish and with intermixed black hairs, silvery whitish in ♀ and with or without a few dark hairs; prealar, postalar and scutellar bristles black in both sexes; sparse erect hairs on abdomen above predominantly pale on tergites 2-4 and black on terminal tergites in ♂ at least; hair on sides of tergites 1-3 in ♂ in form of a characteristic, conspicuous, dense, silvery whitish gleaming patch which is usually flanked anteriorly by a brownish tuft or a few dark hairs; hair on sides of tergite 1 and base of 2 in ♀ also silvery or snow-whitish; hair on rest of tergites 4-8 in ♂ and 2-7 in ♀ in form of blackish brown to dark mauvish brownish tufts; hair on venter gleaming sericeous whitish in both sexes; scaling on body above gleaming sericeous yellowish to golden on thorax and scutellum in ♂, paler in ♀, the tuft on sides of scutellum silvery in both sexes; scaling on abdomen above composed of black and gleaming sericeous whitish hair-like scales, the pale ones across hind margins of tergites usually slightly more sericeous yellowish on tergite 1 and more tuft-like on sides of tergites in ♀, those across 1-3 in ♂ some-

times conspicuous and band-like; those on venter predominantly whitish; those on legs greyish whitish, appearing greyish yellowish on outer surfaces of femora and on tibiae. *Wings* glassy hyaline, iridescent, with the base, basal part of costal cell up to cross vein and along anterior basal part of first basal cell in ♂, and base, costal cell, basal part of marginal cell and more or less the basal half of first basal cell in ♀ yellowish brownish; veins yellowish brownish to dark brownish; basal comb poorly developed; first posterior cell broadly open apically, its sides almost subparallel in ♀, a little longer than discoidal cell, but in some ♀♀ tending to be subequal in length; discoidal cell comparatively broader and shorter in ♂, subacute apically; middle cross vein varying in position from about a little before apical fourth to apical fifth of discoidal cell; alula and axillary lobe normally reduced; squamae subopaquely greyish translucent, black-bordered, fringed with yellowish brownish hair in ♂ and white hair in ♀; halteres yellowish brownish, with brownish or dark brown knobs. *Head* with the interocular space in front of ocellar tubercle in ♂ very narrow, only about as broad as front ocellus; space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli; frons very shining in ♀, slightly depressed anteriorly; face convex medially; antennal joint 3 golf-driver-club-shaped at base; proboscis projecting beyond buccal cavity, its labellar lobes shortish, bluntly pointed apically. *Legs* usually with 1 spine anteriorly on middle femora and 2 on outer lower apical aspect, and about 2 apically above on hind femora; basal joint of front tarsus in ♀ without any distinct, longish, bristly spicules below. *Hypopygium* of ♂ (text-fig. 105) with the dorsal projecting edge of basal strut sometimes tending to be subtruncate at its apex like that of *nigrescens* and with a lateral extension on each side of base of basal strut.

From 9 ♂♂ and 6 ♀♀ (types in the South African Museum and paratypes in the Transvaal Museum).

Length of body: about $5\frac{1}{2}$ –7 mm.

Length of wing: about $5\frac{1}{2}$ –7 mm.

Locality: South-western Little Karoo: Montagu (Lightfoot, Nov. 1919) (types); Montagu (Tucker, Oct. 1919, and Durden, 1937). Koup Karoo: Oukloof in Beaufort West Dist. (Mus. Exp., Jan. 1949). Western Cape: Stellenbosch (Brauns, 5 Dec. 1926). Eastern Cape: Patientie, near Humansdorp (Mus. Exp., Oct. 1938).

This species is easily recognized by the entirely white hair on greater part of frons, antennae above and below and on genae, the yellowish brownish or brownish golden hair on thorax in ♂, the contrasting and conspicuous silvery white patch on each side of abdomen basally in ♂, the black hairs on thorax above, the silvery whitish hair on mesopleurae in ♀, the dark blackish brown tufts on sides of abdomen posteriorly in both sexes and the brownish halteres with dark brown knobs. Representatives of this species in the South African Museum



TEXT-FIG. 105. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia albizonata* n. sp.

have been labelled as *tenera* by Bezzi. From Loew's description of the latter species it is quite evident that Bezzi's determination is incorrect. In the case of *tenera* the thorax in the ♂ is predominantly white-haired, with no black discal hairs or bristles, the white hair on sides of abdomen is present on tergites 1-4 and is not in the form of a conspicuous silvery patch, the knobs of the halteres are almost whitish, the proboscis is stumpy and with a broad ovoid labella, etc. The ♂-paratype from Stellenbosch in the Transvaal Museum represents a slight variety in which there are more black hairs at base of frons, paler yellowish hair on pleurae, broader bands of dense white scaling across hind margins of tergites 2 and 3, more yellowish scaling on venter and a middle cross vein which is at only a little less than apical third of discoidal cell.

Lomatia plocamoleuca n. sp.

Body black; proboscis and the tibiae dark blackish brownish or dark reddish brownish. *Vestiture* with the hairs on front half of frons, intermixed hairs on antennae below, more numerous in ♀, and hair on sides of face and genae sericeous whitish; that on basal part of frons, on antennae above in both sexes and more numerous hairs on antennae below in ♂ black; hair on thorax above in ♂ composed of intermixed sericeous yellowish or golden yellowish hairs and black ones; that in collar-region with denser black hair; that in mesopleural tuft and on pleurae yellowish or brownish golden, with numerous intermixed black hairs on propleural and prosternal parts and on front coxae; hair on thorax in ♀ gleaming sericeous whitish in mesopleural tuft and on pleurae; that on disc above predominantly black, but with intermixed pale hairs; that on propleural part tinted slightly yellowish; prealar, postalar and scutellar bristles black in both sexes; hairs in metanotal tuft predominantly black in ♂ and white in ♀; erect bristly hairs on abdomen discally entirely black in both sexes; a conspicuous patch of silvery white hair on sides of abdomen on tergites 1-3 in ♂ and on sides of tergite 1 in ♀, the dense tufts on sides of the other tergites 4-8 in ♂ and 2-7 in ♀ black; hair on venter sericeous whitish in both sexes; scaling above predominantly sericeous whitish; that on thorax and across hind margin of tergite 1 tinted slightly more sericeous yellowish, the bands across hind margins of tergites slightly broader and more conspicuous in ♀, appearing more tufty on sides; scaling on legs gleaming greyish in certain lights and graphite-like or black in others. *Wings* glassy hyaline, iridescent, with the base, costal cell up to cross vein and basal part of first basal cell in ♂, and base, costal cell, the bases of marginal and first submarginal cells to a lesser and variable extent and more or less basal half of first basal cell in ♀ yellowish to dark brownish; veins brown to dark brownish; basal comb much reduced, more so in ♀; first posterior cell usually slightly longer than discoidal cell, broadly open apically and not narrowed; discoidal cell subacute apically; middle cross vein at about from apical fourth to apical fifth of discoidal cell; alula and axillary lobe normally reduced, slightly more in ♀; squamae opaquely dark brownish, fringed with brown hair in ♂ and white ones in ♀; halteres dark

brownish, their knobs dark chocolate brownish. *Head* with the interocular space in front of ocellar tubercle in ♂ very narrow, only about as broad as front ocellus; space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli; frons brilliantly shining in ♀ and depressed anteriorly in both sexes; face convex medially, appearing subconically prominent from side; antennal joint 3 golf-driver-club-shaped at base, the lobe basally below, however, not markedly projecting; proboscis projecting beyond buccal cavity, its labellar lobes shortish, tending to be rounded apically. *Legs* usually with about 1 spine on middle femora; hind ones with 2 spines on outer lower apical aspect and 1 or 2 apical ones above; basal joint of front tarsus in ♀ with some longish bristly spicules below towards apex. *Hypopygium* of ♂ as shown in text-fig. 106, with the greater medial basal dorsal part of combined basal parts appearing transparent membranous and not chitinized as in other species; base of basal strut with a lateral ledge-like extension on each side.



TEXT-FIG. 106. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia plocamoleuca* n. sp.

From 7 ♂♂ and 6 ♀♀ (types in the South African Museum).

Length of body: about 5–7 mm.

Length of wing: about $5\frac{1}{2}$ – $7\frac{1}{2}$ mm.

Locality: South-eastern Cape: Willow River (Cockscomb Mnt. in Uitenhage Div.) (Mus. Exp., Oct. 1938) (types). Southern Cape: Swellendam (Tradouw Pass) (Mus. Exp., Nov. 1925); Montagu (Durdan). Karoo: Meiringspoort (Mus. Exp., Nov. 1935). Nieuveld Karoo: Beaufort West Dist. (Mus. Exp., Nov. 1935).

This species differs from *albizonata* in having black hairs on antennae above and numerous black ones below, entirely black hairs on abdomen above discally, black hairs on propleural part in ♂, darker veins in wings, darker legs, some distinct, longish, bristly spicules on basal joint of front tarsus in ♀, etc. The darkish anterior infusion in wings in some ♀♀ is very pronounced. The four ♂-paratypes and 1 ♀ from the Nieuveld Karoo in the Beaufort West area differ from the Eastern typical form in being slightly smaller, in having no dark hairs across sides of tergite 1, more white hairs on antennal joint 1 below, more dark hairs on coxae, and the infusion in wings in ♀ not extending into bases of marginal and first submarginal cells.

Lomatia arenaria n. sp.

Body, including legs, black; integument of frons, occiput, thorax above and scutellum more shiny in ♀. *Vestiture* with the rather dense hair on entire frons in ♂, on sides of frons anteriorly in ♀, most of the hairs (or all of them) on antennae below in ♂, a tuft on inner aspect of antennae below in ♀, on sides of face and genae in both sexes silvery white; hairs on ocellar tubercle, those on

greater part of frons in ♀ up to near antennae, fine ones on antennae above (fewer in ♂), a few intermixed ones on antennae below in ♂ and a dense tuft on antennae below in ♀ black; most of the hairs on disc of thorax in ♂, denser hairs on sides of thorax and in mesopleural tuft in both sexes, those on prosternal part and rest of pleurae, on coxae, very densely on sides of tergite 1 and base of 2 in ♂, sides of tergite 1 in ♀ and hairs on venter sericeous white; those on anterior part of humeral tubercle and in propleural tuft and to a very much lesser extent on coxae more sericeous yellowish to fulvous yellowish, especially in ♀; anterior part of collar above, intermixed hairs on front part and sides of thorax and also discally above on thorax and scutellum in ♀, prealar, postalar and scutellar bristles, numerous hairs in metanotal tuft, intermixed hairs on front and middle coxae, dense, shaggy and tuft-like ones on sides of abdomen from tergite 2 and across hind margin of last sternite black; fine hairs on femora gleaming pallid; sparse scaling on thorax above silvery or sericeous whitish anteriorly and on sides, more golden across base and base of scutellum; small tuft on sides of scutellum whitish; scaling on abdomen above black and pale, the latter arranged narrowly across hind margins of tergites and silvery to pale sericeous yellowish, denser, broader and more conspicuous across hind margin of tergite 1, especially in ♀, where they are also distinctly brassy, golden or yellowish in middle; pale bands on extreme sides denser, broader, more patch-like; rest of scaling on tergites dull black; scaling on venter white, denser across hind margins and sides; that on legs greyish whitish. *Wings* vitreous hyaline, iridescent, with the base in ♂ and base, costal cell, a little less than basal half of marginal cell, extreme base of first submarginal cell and greater part or even entire first basal cell in ♀ yellowish brownish to brown, the extreme bases of second basal and anal cells in ♀ sometimes also slightly tinged; costal cell beyond cross vein and upper half of basal part of first basal cell in ♂ sub-opaquely whitish; veins dark; basal comb feeble, black; apical part of second vein not very much recurved; first posterior cell subequal in length or only a



TEXT-FIG. 107.
Side view of
hypopygium of
♂ *Lomatia arenaria*
n. sp.

little shorter than discoidal cell; the latter subacute apically, its apical vein straight or almost so; axillary lobe arcuately rounded, broadish; alula narrowish, but distinct; squamae brownish, snow-white-fringed; halteres brownish, their knobs dark brown. *Head* with the interocular space in front of ocellar tubercle in ♂ as broad as narrow front part of tubercle or a little broader than front ocellus; space on vertex in ♀ about, or a little more than, 2 times distance between outer margins of posterior ocelli; frons distinctly foveately depressed anteriorly, more so in ♀, this depression even in ♀ not entirely free of hairs in middle, though hairs on sides are denser, very dense in ♂; face slightly conically prominent; antennae with joint 1 about or nearly 2 times length of 2, joint 3 in ♂ slightly more ham-shaped, less rapidly narrowed below from broad base, in ♀ more bulb-shaped, the broad base

shorter below, more bulging and more rapidly narrowed, the more slender part in both sexes relatively shortish; proboscis projecting a little beyond buccal cavity, its labellar lobes shortish, oval, shorter than antennal joint 3. *Legs* without any spines on front femora; middle ones with 1 or 2 spines on anterior lower medial part; hind ones with about 2 or 3 spines on outer lower apical part and 1 or 2 apical ones above. *Hypopygium* of ♂ as shown in text-fig. 107.

From 6 ♂♂ and 14 ♀♀ (types in the South African Museum).

Length of body: about 5–7 mm.

Length of wing: about 6–7 mm.

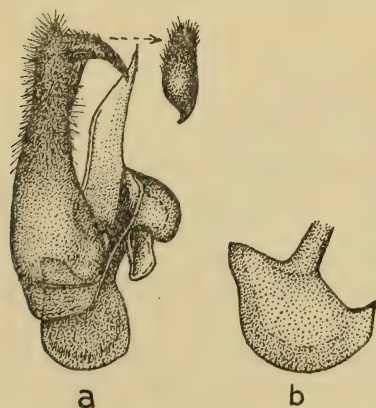
Locality: Little Karoo: near Zebra in the Oudtshoorn Dist. (Mus. Exp., Oct. 1951) (types); Uniondale Dist. (Mus. Exp., Oct. 1952). Koup Karoo: between Rooinek Pass and Seven Weeks Poort (Mus. Exp., Oct. 1952).

The ♂ of this species cannot be confused with ♂♂ of related species, such as *plocamoleuca* and *albizonata* for both of these have much dark or black hairs in mesopleural tuft and on thorax. The ♀, however, can very easily be confused with ♀♀ of the above-mentioned two species. From ♀ of *albizonata* it differs in having distinctly more numerous or even dense black hairs on antennae below, more black hair on frons which extends down to very near antennae, black and not coffee-brownish tufts on sides of abdomen, darker legs and an infuscated or tinged base of first submarginal cell. From ♀ of *plocamoleuca* it differs in having the dark hair on frons extending farther downwards, more whitish hair on sides of frons anteriorly, more intermixed dark ones on coxae, much fewer or without any long white hairs below black tufts on sides of abdomen, slightly sparser pale scaling across hind margins of tergites, less dense black hairs on abdomen above and front tarsi usually without a few longish hair-like spicules below.

Lomatia atrella n. sp.

Body black; proboscis and legs very dark blackish brown, the tibiae not or scarcely paler or more reddish brownish than dark femora. *Vestiture* with the hairs on entire frons, antennae above and predominantly or entirely below, to a great extent on sides of face and on entire genae black in ♂, only some hairs or a tuft on each side of face and sometimes a few intermixed hairs on antennae below straw-coloured yellowish or sericeous yellowish; hair on head in ♀ black on more than basal half of frons, on antennae above and as intermixed hairs on antennae below and a few on lower parts of genae; that on frons anteriorly, densely on antennae below, sides of face and genae sericeous whitish in ♀; that on entire thorax above and below, metanotum and on scutellum in ♂ fairly dense and entirely black or very dark blackish brown or mauvish blackish; that on hinder part of mesopleuron in ♂ tinted more mauvish or brownish black in certain lights; sparse hairs on abdomen discally above in ♂ predominantly sericeous whitish, but with black hairs posteriorly; that on sides of abdomen in ♂ dense, tuft-like and shaggy, white on sides of tergites 1 and 2, these hairs

being flanked on extreme sides and basally by black hair; also a conspicuous and contrasting silvery white patch on sides of apical half of tergite 2 and sides of 3 in ♂; tufts on sides of tergites 4–8 very dark blackish brown, mauvish black to black; hairs on venter in ♂ gleaming sericeous whitish, straw-coloured to pale sericeous yellowish in certain lights; hair on body in ♀ sparse and black on disc of thorax, slightly denser but also black in collar-region, black on sides of thorax, with black prealar, postalar and scutellar bristles; hair in mesopleural tuft in ♀ dense and sericeous whitish; that on pleurae also sericeous whitish; that on abdomen sericeous whitish on sides of tergites 1–2 and as black tufts on sides of 3–7; scaling above predominantly black on abdomen, the pale scaling very sparse in ♂, sericeous yellowish to pale golden across hind margins of tergites, denser in ♀ and more evident on sides of thorax, scutellum and across hind margins of tergites; that on venter sericeous yellowish; that on legs in both sexes usually appearing dark or graphite-like, but gleaming greyish whitish in certain lights. *Wings* vitreous hyaline, iridescent, the base, alula, basal part of costal cell up to cross vein and part of costal cell posterior to false vein in ♂ and in addition the entire costal cell and along anterior basal part of first basal cell in ♀ opaquely yellowish; veins dark brownish or blackish brown, sometimes more yellowish basally, the false vein in costal cell yellowish; basal comb poorly developed, vestigial in ♀; first posterior cell broad, not or scarcely narrowed apically, much longer than discoidal cell; the latter truncate apically, sometimes tending to be subtruncate; middle cross vein at a little less than apical third to apical fourth of discoidal cell; alula and axillary lobe normally reduced; squamae brownish, fringed with black hairs in ♂ and white ones in ♀; halteres and their knobs above dark chocolate brownish. *Head* with the interocular space in front of ocellar tubercle in ♂ a little narrower than tubercle or subequal to length of antennal joint 2; space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli, appearing relatively broad because inner margins of eyes diverge only gradually apically; frons smooth and shining, more or less foveately depressed anteriorly in ♂, more transversely in ♀, with the hairs anteriorly more confined to sides; face slightly convex medially; antennal joint 3 broadened golf-driver-club-shaped basally below; proboscis short, projecting only a little beyond buccal cavity, its labella and lobes short, ovoid, bluntly or rounded apically, resembling two cupped hands when opened, but distinctly much shorter than basal part of proboscis. *Legs* usually with 1 spine



TEXT-FIG. 108. (a) Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia atrella* n. sp. (b) Side view of basal strut of hypopygium of ♂ *Lomatia eremia* n. sp.

subequal to length of antennal joint 2; space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli, appearing relatively broad because inner margins of eyes diverge only gradually apically; frons smooth and shining, more or less foveately depressed anteriorly in ♂, more transversely in ♀, with the hairs anteriorly more confined to sides; face slightly convex medially; antennal joint 3 broadened golf-driver-club-shaped basally below; proboscis short, projecting only a little beyond buccal cavity, its labella and lobes short, ovoid, bluntly or rounded apically, resembling two cupped hands when opened, but distinctly much shorter than basal part of proboscis. *Legs* usually with 1 spine

medially on middle femora; hind ones with 2 spines on outer lower apical part and 2 apical spines above; basal joint of front tarsi in ♀ without any longish bristly spicules below. *Hypopygium* of ♂ as shown in text-fig. 108, a.

From 7 ♂♂ and 1 ♀ (types in the South African Museum).

Length of body: about 5–7 mm.

Length of wing: about $5\frac{1}{3}$ –7 mm.

Locality: Eastern Cape: Groendal in Uitenhage Dist. (Mus. Exp., 28 Oct. 1938) (types); Willow River in Uitenhage Dist. (Mus. Exp., Oct. 1938); Patentie in Humansdorp Dist. (Mus. Exp., Oct. 1938).

Easily recognized by the predominantly black hair on head and thorax in ♂ and the conspicuous, though smallish, silvery white tuft on sides of tergites 2 and 3. From the similarly coloured *melanthia* the ♂♂ are distinguished by the distinctly broader interocular space, slightly longer and more slender proboscis, shorter labella, conspicuous black hair on extreme sides of tergite 1, more truncate discoidal cell, and a first posterior cell which is much longer than discoidal cell. The ♀ resembles that of *nigrescens* and its varieties, but may at once be distinguished by the shorter proboscis, ovoid and shortish labella, white hair only on sides of tergites 1 and 2, and dark scutellar bristles.

Lomatia fulvipleura n. sp.

Body black; integument of frons in ♂ and frons, occiput, thorax and scutellum in ♀ shiny; legs very dark blackish brown or dark piceous brownish, the tibiae slightly paler. *Vestiture* with the tuft anteriorly on each side of frons in ♂, hairs on sides of slightly less than anterior half of frons in ♀, some hairs on antennae below in ♂ and even more or all below in ♀, those on sides of face and genae (only upper part in ♂) sericeous whitish to very pale sericeous yellowish, sometimes pale fulvous yellowish in some ♂♂; hairs on ocellar tubercle, entire frons in ♂ and greater part of frons in ♀, those on antennae above and a dense tuft below (fewer or not at all in ♀) black; hair on entire thorax and scutellum above, propleural and prosternal parts, predominantly on coxae, in metanotal tuft, on sides of tergite 1 below and densely on sides of tergites 4–8 and on posterior tergites above in ♂ black; that in mesopleural tuft, sternopleuron, small metapleural tuft and intermixed hairs on propleurae and coxae in ♂ sericeous yellowish to fulvous, the mesopleural tuft being more conspicuous and contrastingly deeper fulvous yellowish; hairs on tergite 1, especially sides above, and that very densely on sides of 2 and 3 in ♂ silvery whitish, the latter being very conspicuous; sparse hairs on tergites above and those on venter in ♂ also white; hairs on body in ♀ silvery whitish, dense in mesopleural tuft, prosternal tuft, on tergite 1 (dense on sides) and on venter, more sericeous yellowish in humeral tuft, upper part of propleural tuft and to a lesser extent on coxae, black in collar anteriorly, on thorax above anteriorly and laterally (less dense than in ♂), on scutellum; prealar, postalar and scutellar bristles and fine hairs on abdomen above, dense tufts on sides of abdomen and a few inter-

mixed hairs on front and sometimes also middle coxae also black; fine hairs on femora pallid or whitish in both sexes; scaling on front part and sides of thorax absent or dark in ♂, but denser and gleaming pale brassy or sericeous yellowish in ♀, that across base of thorax and scutellum in ♀ more golden; tuft of hair-like scaling on sides of scutellum sericeous yellowish in ♀, whiter in ♂; scaling across hind margins of tergites narrowish, gleaming sericeous yellowish to golden, that across tergite 1 in ♀ distinctly broader, more conspicuous and more yellowish or golden discally and those on rest of tergites in ♀ also more condensed in larger patches on sides; rest of scaling on abdomen above black, much denser in ♀; scaling on venter whitish to very pale sericeous yellowish or even fulvous yellowish in both sexes, denser across hind margins and along sides; scaling on legs mainly dark. *Wings* glassy or vitreous hyaline, iridescent, with the base and base of costal cell in ♂ yellowish and base, costal cell and nearly basal half of first basal cell in ♀ yellowish; costal cell beyond cross vein and base of first basal cell in ♂ subopaquely whitish; veins yellowish brownish to brown; apical part of second vein not very recurved; first posterior cell rather broad, very broadly open, longer than discoidal cell, often much so; discoidal cell obtuse or subtruncate apically, its apical vein straight, slightly oblique to hind margin; middle cross vein at about between apical fourth and a little less than apical third of discoidal cell; anal cell rather broadly open; axillary lobe broadish, its hind margin rather sharply curved; alula normally broad; squamae dark brownish, fringed with snow-white hairs; halteres brown, their knobs brown. *Head* with the interocular space in front of tubercle in ♂ about as broad as front part of tubercle or a little more than 2 times width of front ocellus; space on vertex in ♀ varying from about 2 to nearly 3 times distance between outer margins of posterior ocelli; frons slightly convex in basal half, distinctly foveately depressed anteriorly, slightly deeper in ♀, its greater middle part free of hairs in both sexes; antennae with joint 1 thicker than 2, about $1\frac{1}{2}$ –2 times length of 2, joint 3 golf-driver-club-shaped, its broadened base bulging below, its slender part more than half length of broad base; proboscis shortish, about or a little less than 1 mm. long, scarcely or only slightly projecting, shining, its labella shortish, ovoid; palps short. *Legs* without any spines on front femora; middle ones with 1 or 2 spines on lower anterior and medial part; hind ones with 2 or 3 spines on lower outer apical aspect and about 2 apically above; basal joint of front tarsi in ♀ without long hair-like spicules. *Hypopygium* of ♂ very similar to that of *atrella*, but basal parts relatively shorter and the lateral struts distinctly longer.

From 36 ♂♂ and 8 ♀♀ (types in the South African Museum).

Length of body: about 5–6 mm.

Length of wing: about $5\frac{1}{2}$ – $6\frac{1}{2}$ mm.

Locality: Western Cape: Bulhoek between Clanwilliam and Klawer in the Olifants River Valley (Mus. Exp., Oct. 1950) (types); Citrusdal Dist. in the Olifants River Valley (Mus. Exp., Nov. 1948).

This species is very near *atrella* from which the ♂ may at once be distinguished by the pale or sericeous yellowish hairs on sides of frons anteriorly and sides of face, the conspicuous fulvous yellowish mesopleural tuft, pale hairs on coxae, whitish fringe of squamae and bands of very pale scaling across hind margins of tergites. The ♀ is more difficult to separate from ♀ of *atrella*, but differs in having only the hairs on sides of tergite 1 and base of 2 white (in *atrella* entire sides of 1 and 2 white), in having comparatively fewer dark hairs and more pale scaling on sides of thorax in front, denser yellowish scaling on venter below, a distinctly broader axillary lobe of which the hind margin is more sharply and less regularly curved, and darker tibiae.

Lomatia eremia n. sp.

Body, including proboscis and legs, black, the labellar lobes sometimes tending to be more brownish. *Vestiture* with the hairs on entire head in front in ♂ black, that on greater part of frons, on antennae above and densely below in ♀ as well as some hairs on lower parts of genae also black; that on extreme sides of frons anteriorly, intermixed hairs on antennae below, that on sides of face and on upper parts of genae in ♀ sericeous whitish; hair on thorax and scutellum above and on pleurae and coxae in ♂ entirely black; that in collar-region and on thorax and scutellum above, including prealar, postalar and scutellar bristles, and hair on propleural part and on all the coxae in ♀ black; intermixed hairs on sides of thorax in front of wing-bases, that densely in mesopleural tuft, on metanotum and on pleurae sericeous whitish in ♀; fine erect hairs on abdomen discally above predominantly dark or black; the dense hair on sides in ♂ in form of a conspicuous contrasting silvery white patch on sides of apical half of tergite 2 and on entire side of 3 and some white hairs on sides of tergite 1; that on sides basally of tergite 1 and basal half of 2, however, black, with the tufts on sides of rest of tergites very dark blackish brown to black; that on sides of abdomen in ♀ also black on sides of tergites 2-7, but entirely snow-whitish on sides of tergite 1 and extreme base of 2; pale scaling above gleaming sericeous whitish, and, in ♀, practically represented only across hind margin of tergite 1 and on sides of other tergites, the greater part of disc being covered with dark or graphite-like scaling; that on venter whitish; that on legs appearing predominantly dark or graphite-like or black, gleaming greyish in certain lights. *Wings* vitreous or glassy hyaline, iridescent, the base, alula and basal part of costal cell up to cross vein in ♂ and also entire costal cell and along anterior basal part of first basal cell in ♀ opaquely yellowish to pale yellowish brownish; veins yellowish brownish to dark brownish; basal comb vestigial; first posterior cell broadly open, not narrowed apically, much longer than discoidal cell; the latter truncate or subtruncate apically; middle cross vein varying in position from a little less than apical third to a little less than apical fifth of discoidal cell; alula and axillary lobe normally reduced; squamae brownish to dark brownish, its fringe blackish brown in ♂ and white in ♀; halteres brownish, the knobs chocolate-brownish above. *Head* with the interocular space in front of

ocellar tubercle in ♂ as broad as narrow front part of tubercle or front ocellus; space on vertex in ♀ about, or a little more than, 2 times distance between outer margins of posterior ocelli; frons shining in both sexes, only gradually and slightly broadened apically in ♀, foveately depressed anteriorly, slightly more so in ♂, the hairs anteriorly confined to sides; face slightly convex medially; antennal joint 3 broadened golf-driver-club-shaped basally below, the lower basal part bulging, the styliform part rather stoutish; proboscis shortish, with only the apical part of labella projecting beyond buccal cavity, the labellar lobes shortish and ovoid, much shorter than rest of proboscis. *Legs* usually with 1 spine on middle femora; hind ones usually with 3 spines on outer lower apical part and with about 2 small apical spines above; basal joint of front tarsi in ♀ without any longish bristly spicules below. *Hypopygium* of ♂ like that of *atrella* (text-fig. 108, *a*), but differing in having relatively longer lateral struts and a larger basal strut (text-fig. 108, *b*) which is differently shaped.

From 2 ♂♂ and 6 ♀♀ (types in the South African Museum and paratype in the Commonwealth Institute).

Length of body: about $5\frac{2}{3}$ –7 mm.

Length of wing: about 6–7 mm.

Locality: Koup Karoo: Laingsburg Div. (Mus. Exp., Feb. 1938) (types). Karoo: Doring River (Ogilvie, 3 Nov. 1931).

Very near *atrella* from which it may however be distinguished by the absence of a distinct pale tuft on sides of face in ♂, deeper foveate depression on frons anteriorly, distinctly and relatively narrower interocular space in ♂, entirely or predominantly black hair on coxae in ♀♀ and slightly less extensive white hair on sides of tergites 1 and 2 in ♀♀. From ♂ of *melanthia* the ♂ may at once be distinguished by its relatively broader interocular space, anterior frontal depression, less extensive silvery patch on sides of abdomen, more truncate discoidal cell, etc.

Lomatia cinereola n. sp.

Body black; buccal rim, proboscis, palps, and tibiae reddish brownish to deep castaneous brownish. *Vestiture* with the hairs on frons anteriorly, intermixed hairs on antennae below and the hair on sides of face and genae sericeous whitish; that on basal half of frons, antennae above, numerous bristly hairs on antennae below and hairs on lower parts of genae black; dense hair in mesopleural tuft and that on pleurae predominantly sericeous whitish in both sexes; that on prosternal part tinted slightly pale sericeous yellowish in certain lights; that on sides of thorax in front of wings composed of intermixed black bristly hairs and whitish ones; that in collar-region black; that on disc of thorax and scutellum, especially in ♂, composed of intermixed black and white hairs, sparser and more predominantly black in ♀; prealar, postalar and scutellar bristles black in both sexes; hairs in metanotal tuft also with numerous black ones and with numerous intermixed black hairs on prosternal part in ♂; hair on abdomen discally predominantly whitish in ♂, dark only posteriorly from

tergite 5, but predominantly dark in ♀, that on sides of tergite 1 and greater part of 2 sericeous whitish, some hairs on sides of apical half of tergite 2 and on sides of 3-7 (or 8) blackish brown, tinted coffee-brownish in certain lights; hair on sides of abdomen in ♀ shorter than in ♂; that on venter whitish in both sexes; scaling above in form of dark and pale hair-like scaling, the latter gleaming slightly pale sericeous yellowish on thorax and scutellum and more sericeous whitish in the narrowish, but conspicuous, transverse bands across tergites on abdomen above, that laterally tending to form denser tufts; scaling on venter dense, whitish; that on legs gleaming greyish yellowish on anterior surfaces, more greyish whitish on lower and hinder surfaces, but appearing dark or brownish graphite-like in certain lights. *Wings* predominantly vitreous hyaline, iridescent, the base, alula, entire costal cell and base of first basal cell in both sexes, and to a certain extent extreme base of marginal cell in ♀, opaquely yellowish brownish; veins brownish to dark brownish, more yellowish towards base; basal comb normally reduced; first posterior cell not narrowed apically, a little longer than discoidal cell; the latter subacute to almost acute apically, its apical cross vein usually feebly sinuous; middle cross vein at a little less than apical fourth to a little less than apical fifth of discoidal cell; alula and axillary lobe normally reduced; squamae opaquely brownish, fringed with white hair; halteres brown, the knobs yellowish brown to brown above. *Head* with the interocular space in front of tubercle in ♂ narrow, only about, or a little broader than front ocellus; space on vertex in ♀ about 2 times distance between outer margins of posterior ocelli; frons foveately depressed anteriorly; face convex medially; antennal joint 3 broadened bulb-like to almost golf-driver-club-like basally below; proboscis slender, projecting much beyond buccal cavity, its labellar lobes narrowish, pointed apically; palps rather long and slender, quite as long as antennae. *Legs* with 1 spine on middle femora below; hind ones with about 2 or 3 spines on lower outer apical part and 2 apical ones above; basal joint of front tarsi in ♀ without very long bristly spicules below. *Hypopygium* of ♂ resembling that of *atrella* (cf. text-fig. 108, *a*), with the basal strut similarly shaped, but with the neck-region of basal parts less narrow and the beaked apical joints appearing shorter, broader and more leaf-shaped.

From 2 ♂♂ and 2 ♀♀ (types in the Transvaal Museum and paratypes in the South African Museum and Commonwealth Institute).

Length of body: about 6-7 mm.

Length of wing: about $6\frac{2}{3}$ -7 mm.

Locality: Karoo: Willowmore (Brauns, April 1923 (types); Willowmore (Brauns, Jan. 1922); Doring River (Ogilvie, 3 Nov. 1931).

Easily recognized by the whitish hair on sides of thorax, pleurae and sides of tergites 1 and 2 in both sexes, the rather conspicuous, but narrowish, bands of whitish scaling on abdomen and the markedly long palps. From *latiuscula*, which it superficially resembles, it may be distinguished by the less pale tibiae, brownish knobs of halteres, more golf-driver-club-shaped third antennal joints, deeper and more foveate frontal depression, distinctly much longer palps, etc.

From ♀♀ of *albizonata*, *plocamoleuca*, *atrella*, and *eremia* the ♀ may be distinguished by the long palps and relatively longer proboscis, etc.

Lomatia namaqua n. sp.

Body black; buccal rim, proboscis and tibiae dark blackish brown or dark reddish brown. *Vestiture* in ♂ with the hairs on entire frons, antennae above and densely below as well as a few hairs on lower parts of genae in ♂ black; that in a tuft on each side of frons anteriorly just above level of antennae, that on sides of face and greater part of genae sericeous whitish; that in mesopleural tuft and on pleurae very pale sericeous yellowish or straw-coloured; some or numerous intermixed black hairs on propleural part; hairs in collar-region black; that on thorax above sparse and composed of fine intermixed pale and black hairs; prealar, postalar and scutellar bristles black; hair in metanotal tuft predominantly black; that on sides of apical part of tergite 2 and on sides of 3 conspicuously and contrastingly silvery whitish; that on sides of tergites 1 and 2 whitish, less dense and flanked by black hairs basally and on extreme sides; tufts on sides of rest of tergites black; hairs on venter sericeous whitish; pale scaling above, where still indicated, straw-coloured; that on legs greyish whitish, but appearing dark in certain lights. *Wings* vitreous hyaline, iridescent, the extreme base blackish brown, the base, alula and basal part of costal cell up to cross vein subopaquely pale yellowish brownish; veins brownish, the first main vein and bases of others more yellowish brownish; basal comb vestigial; first posterior cell not narrowed, broadly open apically, longer than discoidal cell; the latter subtruncate to truncate apically; middle cross vein between a little less than apical third to halfway between apical third and apical fourth of discoidal cell; alula and axillary lobe normally reduced;



TEXT-FIG. 109. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia namaqua* n. sp.

squamae opaquely brownish, fringed with whitish hair; halteres brownish, the knobs brownish or dark brownish above. *Head* with the interocular space in front of tubercle in ♂ a little broader than front ocellus, about as broad as length of antennal joint 2; frons foveately depressed anteriorly, the hairs confined to sides of depression; face convex medially; antennal joint 3 broadened golf-driver-club-like basally below, the lower basal part bulging; proboscis shortish, with only the apices of labella projecting a little beyond buccal cavity, the labellar lobes shortish and ovoid, but much shorter than rest of proboscis. *Legs* usually with 1 spine on middle femora below; hind ones with about 2 spines on outer lower apical part and at least 2 apical ones above. *Hypopygium* shown in text-fig. 109.

From 2 ♂♂ in the South African Museum.

Length of body: about $5\frac{1}{2}$ – $5\frac{3}{4}$ mm.

Length of wing: about $5\frac{2}{3}$ –6 mm.

Locality: Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936).

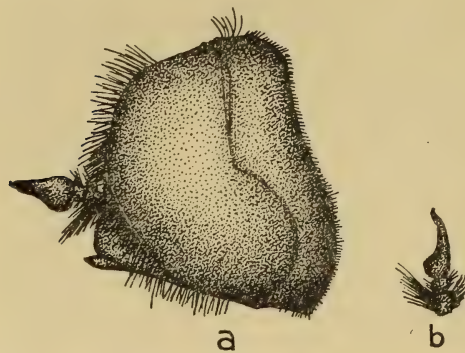
Distinguished from *cinereola* by the predominantly black hair on frons, more conspicuous and contrasting silvery white patch on sides of part of tergites 2 and 3, much shorter proboscis, shorter palps, clearer part of costal cell beyond cross vein, etc.

Lomatia conostoma n. sp.

(Syn. = *mitis* Bezzi, nec Loew, p. 81, *Broteria* (Ser. Zool.), xx, fasc. ii, 1922.)

Body black; buccal rim, proboscis and legs dark castaneous brownish to blackish brownish, the buccal rim and tibiae sometimes more sienna or reddish brownish. *Vestiture* with the hairs on more than basal half of frons, antennae above and intermixed hairs on antennae below, especially in ♂, black, sometimes with some black hairs on lower parts of genae as well; hair on sides of frons anteriorly, that densely on antennae below, sometimes entirely in ♀, that on sides of face and on genae sericeous whitish to silvery whitish; that in mesopleural tuft and pleurae sericeous whitish or straw-coloured yellowish to even slightly pale sericeous yellowish; that on propleural part usually tinted slightly more sericeous yellowish in specimens with white hair on pleurae; that on prosternal part and front coxae, in ♂ especially, with some intermixed black hairs; hair on thorax and scutellum above relatively sparse and predominantly black; those in collar-region and the prealar, postalar and scutellar bristles black; intermixed whitish or pale hairs, however, present on sides of thorax in front of wings and just above wings; some or numerous intermixed black hairs also present in metanotal tuft; hair on abdomen above predominantly or entirely black, that on sides of apical part of tergite 2 and on sides of 3 in form of a conspicuous contrasting silvery whitish patch in ♂; that on sides of tergites 1 and 2 composed of sericeous whitish hairs and black or dark ones, the latter at base of tergite 1 and on sides of 2; tufts on sides of rest of tergites dark blackish brown or tinted dark coffee-brownish; hair on sides of abdomen in ♀ slightly shorter than in ♂, sericeous whitish on sides of tergites 1 and base of 2, black or dark coffee-brownish on sides of the remaining tergites; hair on venter sericeous whitish; scaling above with black scales evident discally on abdomen above in ♀, the pale ones gleaming sericeous whitish in both sexes and arranged as narrow transverse bands across hind margins of tergites, those on sides usually denser and more tuft-like; pale scaling of thorax antero-laterally sometimes tinted slightly more sericeous yellowish; that on venter dense, pale sericeous yellowish in certain lights; that on legs appearing greyish whitish on hinder and lower surfaces, gleaming greyish whitish, dull greyish yellowish to dark graphite-like on anterior and upper surfaces in certain lights. *Wings* vitreous hyaline, iridescent, the extreme base smoky or blackish brown, the base, alula and basal part of costal cell up to cross vein in ♂ and in ♀ also entire costal cell and along anterior basal part of first basal cell tinged subopaquely or opaquely yellowish brownish to dull smoky brownish, usually slightly more so in ♀; veins brownish to dark blackish brownish, the first main vein and bases of others usually more

yellowish brownish; basal comb reduced; first posterior cell not narrowed, very broadly open apically, longer than discoidal cell; the latter subtruncate to truncate apically; middle cross vein varying in position from about halfway between apical third and apical fourth to halfway between apical sixth and apical seventh of discoidal cell, more often however between a little less than or a little more than apical fourth of the cell; alula and axillary lobe normally reduced, though lobe of alula at base of axillary lobe is distinct and the latter



TEXT-FIG. 110. (a) Side view of head of ♂ *Lomatia conostoma* n. sp. (b) Right antenna of ♀ of same species (from inner side).

is slightly more arcuately rounded in ♂; squamae opaquely greyish whitish to brownish, dark-bordered, fringed with white hairs; halteres usually dark brownish, the knobs dark chocolate-brownish above, sometimes tending to be yellowish brownish or smoky greyish above. *Head* (text-fig. 110) with the interocular space in front of tubercle in ♂ usually a little broader than front ocellus to about as broad as length of antennal joint 2; space on vertex in ♀ about, or a little more

than, 2 times distance between outer margins of posterior ocelli; frons foveately depressed anteriorly, only gradually and slightly diverging anteriorly in ♀, the hairs anteriorly confined to sides; face (text-fig. 110, a) markedly conical or subconically prominent from side, more so than in other species, its apical part cone-like, smooth and shining; antennal joint 3 (text-fig. 110, a) characteristic in ♂, much, but gradually, broadened basally, ham-shaped or leg-of-mutton-shaped, in ♀ more rapidly broadened basally below, more bulb-shaped or almost golf-driver-club-shaped (text-fig. 110, b), the styliform part in ♀ thus longer and more slender; proboscis rather short, usually confined to buccal cavity or with only the apices of labella projecting slightly, the labellar lobes shortish, narrowish, or only slightly ovoid, but much shorter than rest of proboscis. *Legs* with 1 spine on middle femora below; hind ones usually with 2 spines on outer lower apical part and 1 or 2 apical spines above; basal joint of front tarsi in ♀ without distinct, long, bristly spicules below. *Hypopygium* of ♂ as shown in text-fig. 111.

From 16 ♂♂ and 22 ♀♀ (types in the South African Museum, paratypes in the Commonwealth Institute and in Transvaal and Albany Museums).

Length of body: about 5–7 mm.



TEXT-FIG. 111. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Lomatia conostoma* n. sp.

Length of wing: about $5\frac{1}{2}$ –7 mm.

Locality: Koup Karoo: Laingsburg Div. (Mus. Exp., Feb. 1938) (types). Karoo: Murraysburg Dist. (Mus. Exp., March 1931); Willowmore (Brauns); Victoria West Dist. (Mus. Exp., March 1931); Doring River (Ogilvie, 3 Nov. 1931). South-eastern Karoo: Resolution in the Albany Dist., near Grahams-town (Walton, Jan.–April 1928 and 21 March 1928); Fort Brown (Walton, 20 March 1928).

Easily recognized by its prominent subconical or conically produced face and broadened ham-shaped third antennal joints. The species appears to be slightly variable; the pale hair on mesopleuron and pleurae being tinted slightly more straw-coloured yellowish or pale sericeous yellowish instead of whitish in some specimens; the black hair on thorax above denser; and the third antennal joints in some ♀♀ tend to be more golf-driver-club-shaped at base than bulb-shaped. The ♂-specimen from Willowmore, in the collection of the late Dr. Brauns, is labelled as *mitis* Lw. and probably represents the specimen to which Bezzi refers on p. 81 in 'Broteria (Ser. Zool.), xx, 1922'. As this specimen does not agree with Loew's description of *mitis* (p. 209, *Dipt. Faun. Südaf.*, i, 1860) or with the ♀-specimen identified as such in this revision, this identification is obviously erroneous.

SPECIES NOT IDENTIFIED

Three species of *Lomatia* which have been described from Southern Africa and which I have not seen or been able to identify are:

Lomatia loewi Bezz. (p. 613, *Trans. Ent. Soc. Lond.*, 1911), n.n. for *Lomatia inornata* Lw. (p. 209, *Dipt. Faun. Südaf.*, i, 1860). (Probably only a small form of *mitis* (see under that species).)

Lomatia melampogon Lw. (p. 207, *Dipt. Faun. Südaf.*, i, 1860).

Lomatia rufa (Wied.) (p. 291, *Aussereurop. Zweifl. Ins.*, i, 1828), described as an *Anthrax*.

Aphoebantus and *Petrorossia*-group

The genera *Aphoebantus* Lw., *Cononedys* Herm. and *Petrorossia* Bezz., which are referred to this group of the *Lomatiinae*, are characterized by the forward bend or kink near apex of second main vein, the relatively long costal cell, the short or faint bisecting line from posterior indentation in eyes, the more cylindrical abdomen, comparatively less dense hair on body, absence of a dense and conspicuous tuft on antennae below and by the presence of a distinctly visible terminal joint to third antennal joint and which bears a style.

Gen. *Petrorossia* Bezz.

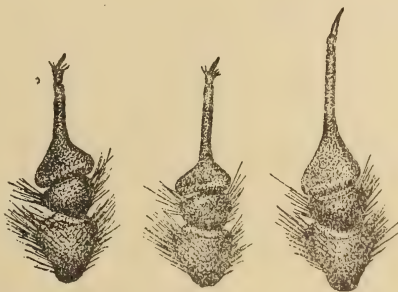
(Bezzi, p. 32, *Zeitschr. f. Hymen. u. Dipt.*, viii, 1908; Bezzi, p. 615, *Trans. Ent. Soc. Lond.*, 1911; Becker, pp. 435 and 468, *Ann. Mus. Zool. Acad. Imp. St. Petersb.*, xvii, 1912; Bezzi, pp. 5 and 119, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 27 and 151, *The Bombyliidae of*

the Ethiopian Region, 1924; Bezzi, pp. 209 and 213, *Bull. Soc. Roy. Ent. d'Egypte*, xviii, 1924; Curran, pp. 35 and 38, *Bull. Amer. Mus. Nat. Hist.*, lvii, 1927-8; Engel, p. 407, *Die Fliegen d. Pal. Reg.*, lief. 99, 1936; Austen, pp. 8 and 108, *Bombyliidae of Palestine*, 1937.)

This genus was erected by Bezzi in 1908 to contain an old Palaearctic species, *Bibio hesperus*, described by Rossi in 1790 and originally placed in the family *Bibionidae*. Subsequently certain species of *Bombyliidae*, described as species of *Anthrax*, by Wiedemann, Macquart and Loew, were incorporated in the genus *Petrorossia* by Bezzi. At present about 19 Palaearctic and Ethiopian species, including the 6 new forms described in this revision, are included in this genus. Within the geographical limits dealt with in this work at least 9 species and their varieties are known. The characters of this genus, as based on the South African forms in the collections before me, are as follows:

Body tending to be elongate; abdomen, though elongate, usually slightly flattened dorso-ventrally, rarely tending to be cylindrical even in ♂♂; head, thorax, scutellum and pleurae usually black; hind margin of metapleural part, sides of abdomen and the venter yellowish reddish or orange reddish to a variable extent, the red sometimes confined to extreme sides of tergites and to hind margins of sternites, sometimes very extensive, the sides of abdomen being broadly reddish, with only a central, longitudinal, black band and in some species the abdomen may be entirely or predominantly reddish; legs either entirely yellowish in both sexes or the femora may be darkened to a variable extent in ♂♂ or even in ♀♀, or the front and hind ones may be darkened to a variable extent, their spines and spicules always black. *Vestiture* less dense, shorter and less conspicuous than in *Lomatia*; that on frons and face shortish, fairly dense, not shaggy; that on occiput fine, very short and dense; that in collar above, humeral part, sides of thorax, in mesopleural tuft, propleural part and sides of tergite 1 longer, more shaggy in appearance than the rest; that on disc of thorax usually short and sparse, sometimes very much so; that on rest of abdomen less dense; greater part of pleurae without long hair, the hinder half or metapleural part bare and a metanotal tuft absent; prealar, postalar and scutellar bristles usually well developed; a greyish or sometimes silvery gleaming pruinescence usually present on sides of frons anteriorly, on face, sides of head and on pleurae; scaling usually well developed, short, fine, hair-like and fairly dense above, either dull greyish yellowish or yellowish, sometimes in form of very dense, brilliantly gleaming, deep reddish golden, pile-like scales, especially on sides of thorax; scaling on pleurae relatively sparse, present only on sternopleuron and as two small tufts on metapleural plate, longer and more hair-like than that above, whitish in most species, rarely golden; that on coxae like that on pleurae; scaling on venter hair-like, usually whitish; that on legs more lanceolate, usually whitish. *Wings* usually elongate, usually longer than body, relatively narrowish, either entirely hyaline or infuscated at base and in costal part in ♂♂ and in basal two-thirds in ♀♀, or tinged to a variable extent in both sexes, or uniformly infuscated throughout,

or darkly infuscated in form of a distinct pattern in both sexes; second vein originating obtusely at about midway between base of third vein and middle cross vein or a little beyond middle, with a distinct forward bend or kink near its end as in the *Tomomyzinae*, the end bent upwards, sometimes in form of a deep loop; two submarginal cells present, the base of vein between them sometimes bent at right angles to third vein and with a short stump at bend; first posterior cell rather long, much longer than discoidal cell, open apically; middle cross vein always a little before middle of discoidal cell; apical part of latter broad and its apical vein S-curved; alula either lobe-like or much reduced or even vestigial; axillary lobe either broadish, roundly lobe-like, or narrow, reduced, even narrower than anal cell, its base acute and giving the wings a pedunculate appearance (text-fig. 118 below); squamal fringe either distinct or very poorly developed. *Head* globular; occiput with the medial sulcation immediately behind ocellar tubercle slit-like or gap-like; eyes large, angularly indented behind, a distinct, short bisecting line extending forwards from indentation; interocular space in front of tubercle in ♂♂ varying in width from about as broad as tubercle to sometimes nearly 3 times width of latter; space on vertex in ♀♀ from about $1\frac{1}{2}$ to nearly 3 times width of tubercle; ocellar tubercle itself small, prominently raised, pimple-like; frons sometimes shining in basal two-thirds in both sexes, centrally longitudinally depressed for some distance in front of tubercle in ♀♀; face slightly, but uniformly, convex, not tumidly prominent or conically produced; buccal cavity fairly deep; genal furrows only indicated on sides of lower part of face; proboscis short, confined to buccal cavity, stumpy, its labellar lobes broad, ovate, subequal in length to rest of proboscis, sometimes a little shorter, with longish hair-like spinules; palps very short, club-like, broadened in apical part, or leaf-shaped and somewhat flattened, their bases stalk-like, the apical and lower parts with stiffish dense hairs; antennae (text-fig. 112) separated at base, joint 1 broadish, cup-shaped, lodging the somewhat globular joint 2, both joints 1 and 2 with bristly hairs above and below which are not very dense and tuft-like as in *Lomatia*; joint 3 either broadened bulb-like basally or with the base broad and discoidal, the rest of joint very slender, rod-like, ending in a distinct joint bearing a fine style and sometimes also a crown of short hairs. *Abdomen* with the line-like transverse depression across base of tergite 2 rather deep and distinct. *Legs* with the front coxae sometimes longer than half length of front femora; femora with longish or short, fine, pale hairs along outer and lower surfaces, especially on front and middle



TEXT-FIG. 112. Inner views of right antennae of ♀♀ of *Petrorossia hesperus* subsp. *tropicalis* Bezz., *Petrorossia pleropharia* n. sp., and *Petrorossia fulvipes* (Lw.).

ones; front and middle ones rarely with 1 or 2 or a few spinelets below; hind ones with a variable number of spines on outer lower apical part and on upper outer apical part, with a distinct row of spines from base to apex on inner lower part in ♂♂ of some species; tibiae with the spicules in more or less four rows, those on hind tibiae more developed, those in inner upper row on front ones absent or only present near apex, apical spurs not very long; tarsi slender, the front ones slightly modified in both sexes, more so in ♀♀ and more hairy from joint 2; claws well developed, bent down apically; pulvilli well developed, flattened, reaching bent-down apices of claws. *Hypopygium* of ♂♂ (text-figs. 113, 115, 116, 117, 119, 120 and 121) with the basal parts convex, shell-like, covered dorsally and along outer apical margin with fairly stoutish, conspicuous and longish, bristly hairs, the base usually drawn out into a sort of scoop-like process; beaked apical joints either more or less twisted, curved or scroll-like, the dorsal or outer apical part excavated or hollowed, produced apically into a spine-like process or into upper and lower processes or even three processes, the upper one usually directed outwards over lower one, the dorsum of these joints usually with hairs or a tuft; aedeagus with a ventral process below, formed by the union of a ramus on each side from sides of basal parts, the apical part of this process either pick-like, blade-like, or ending in a bidentate or bifid process which is directed downwards; lateral struts shoe-horn-shaped, sometimes broadish and long; basal strut ham-shaped, sub-racket-shaped or chopper-shaped, its apical margin sometimes with a ledge-like extension.

There is no doubt that this genus is very near the American genus *Aphoebantus* Lw. which is also supposed to be represented in North Africa and the Mediterranean region. According to descriptions of the latter, this genus differs from it in having antennal joint 3 slender, rod-like and rapidly broadened bulb-like or discus-like basally, not conical or pyriform, ending apically in a joint bearing a style and sometimes also a crown of short hairs; second vein originating obtusely more or less midway between base of third vein and middle cross vein or slightly beyond middle; slightly less dense hairs on body; and in having the hind margin of scutellum dull, not shining. From *Lomatia* Meig. it may at once be distinguished by the absence of dense shaggy hairs on antennae below and on body, especially sides of abdomen, the presence of a distinct bisecting line from indentation in eyes behind, the second vein originating obtusely farther away from base of third, presence of a forward bend near end of second vein, presence of a distinct apical joint to antennal joint 3, etc. The species represented in the collections before me may be more or less divided into three distinct sections which may be recognized and distinguished by certain collective characters given in the following key and under the respective sections.

Key to the South African species of Petrorossia

1. (a) Body above on the whole more hairy in appearance, the erect hairs, especially on frons, face and thorax above longer and denser; depressed, fine, hair-like scaling above usually dull yellowish or only faintly gleaming golden, not in form of dense, brightly gleaming, golden pile; abdomen predominantly black above and any red, if present,

narrowly confined to extreme sides or to sides of hind margins of tergites or to venter; anterior coxae only a little more than half or sometimes a little less than half length of front femora; femora, especially anterior and middle ones, with longish fine hairs on outer and lower surfaces, hind ones in ♂♂ without any or with much fewer spines on inner lower part; interocular space in ♀♀ relatively broader, at least $2-2\frac{1}{2}$, or slightly more, times as broad as tubercle; frons dull. 2

- (b) Body above appearing less hairy, the hairs on frons, face and thorax distinctly less dense, shorter; depressed fine scaling above, especially on thorax and scutellum, in form of conspicuous, dense, brightly gleaming, golden to reddish golden pile; abdomen predominantly yellowish reddish or orange reddish and, if black above, the sides distinctly more broadly and extensively reddish and the black only band-like; anterior coxae usually much more than half as long as front femora; femora with much shorter, less conspicuous, fine hairs on outside below, hind ones in ♂♂ with a distinct row of spines along inner lower part; interocular space in ♀♀ distinctly much narrower, usually scarcely or less than 2 times width of tubercle; frons shining, even in ♂♂.

. 6 (*fulvipes*-section) (p. 323)

2. (a) Wings not markedly elongate, usually predominantly or entirely hyaline and if slightly tinged, the infuscation not in form of a distinct dark and characteristic pattern; second vein normally and comparatively shallowly looped at end; alula and axillary lobe distinctly more developed, the base of wings not pedunculate in appearance; interocular space at narrowest part, in front of tubercle, very much broader in ♀♀ than in ♂♂. 3 (*hesperus*-section) (p. 315)

- (b) Wings markedly elongate and darkly infuscated, the infuscation in form of a distinct or characteristic pattern; second vein more suddenly and deeply looped at end, almost recurved; alula and axillary lobe narrower, the former vestigial and the latter much reduced, the base of wings thus pedunculate in appearance; interocular space in front of tubercle only a little or scarcely narrower in ♂♂ than in ♀♀.

. 4 (*vinula*-section) (p. 319)

3. (a) Wings almost entirely hyaline, only faintly yellowish in costal cell; sides of abdomen less broadly or extensively yellowish and hind margins of posterior tergites (or tergite) less broadly reddish; femora in ♂♂ usually more extensively darkened basally to a variable extent and hind ones in ♀♀ usually more darkened apically; slightly smaller forms, about 4-8 mm. long, with a wing-length of about 4.6-8.5 mm.

. ♂ ♀ *hesperus* subsp. *tropicalis* Bezz. and slight forms of it (p. 315)

- (b) Wings more distinctly tinged or infuscated basally and anteriorly in costal cell, basal parts or basal halves of marginal and submarginal cells, base or almost basal half of first posterior cell, more than basal half of discoidal cell and to a fainter extent basal parts of third and fourth posterior cells and in anal cell, this infuscation imperceptibly grading into hyaline part; femora in ♂♂ usually less darkened basally, more often the front and middle ones entirely yellowish and hind ones in ♀♀ usually less or not darkened apically; slightly larger forms, about $7\frac{1}{2}$ -9(10) mm. long, with a wing-length of about 8-10 mm. other forms of ♂ ♀ *hesperus* subsp. *tropicalis* Bezz. (p. 318)

4. (a) Wings predominantly very dark chocolate brownish, the apical part not uniformly and entirely hyaline, the apical part of marginal cell and sometimes the area along vein between submarginal cells infuscated; clear or whitish areas or elongated spots present in apical part of discoidal cell, in middle parts of second to fourth posterior cells, in apical parts of submarginal cells and to a fainter and lesser extent at apex of marginal cell and just beyond middle of first submarginal cell; praediscoidal spot more conspicuous; basal two-thirds of axillary lobe clear or hyaline; hind femora more conspicuously and more extensively darkened along upper part or upper apical part; face with more numerous or with mainly black hairs; posterior part or half of abdomen above with more numerous black bristly hairs. 5

- (b) Wings predominantly sienna or coffee-brownish or yellowish brownish, the apical part, including apex of marginal cell, from apex of costal cell across to apex of first posterior cell entirely and uniformly hyaline, the infuscated part appearing distinctly more uniform; elongated or less infused areas in the cells less distinct; praediscoidal spot small, faint and indistinct; more than basal two-thirds or entire axillary lobe clear;

hind femora tending to be more extensively yellowish or at least less extensively dark along upper part; face without any or with comparatively fewer black hairs; abdomen posteriorly with less numerous black bristly hairs.

- ♂ ♀ *plerophaia* n. sp. (p. 322)
5. (a) Apical parts of submarginal cells not uniformly and entirely hyaline, the infuscation in wings extending along vein separating them; clear spots in cells clearer, more evident; anal cell dark like rest of infused part; basal two-thirds of axillary lobe more hyaline. ♂ ♀ *vinula* Bezz. (p. 319)
- (b) Apical parts of submarginal cells uniformly and entirely clear or only greyish hyaline, there being no infusion along vein separating them; less infused areas or spots in cells duller, not so conspicuously evident; greater part of anal cell clearer, less infused, more greyish hyaline; greater part of axillary lobe also less hyaline, more greyish hyaline. ♂ ♀ *masieneënsis* n. sp. (p. 321)
6. (a) Wings (text-fig. 118, upper figure) with the alula distinctly less reduced, the axillary lobe distinctly broader, as broad as or broader than anal cell, the basal part of wings thus not appearing pedunculate; base of vein between submarginal cells more constantly bent down at right angles and there with a more constant stump; interocular space in front of ocellar tubercle in ♂♂ a little broader than tubercle, about 2 or a little more times width of tubercle in ♀♀. 7
- (b) Wings (text-fig. 118, lower figure) with the alula very much reduced or vestigial, the axillary lobe also distinctly narrower, very narrow basally, at broadest part usually narrower than anal cell, this basal part of wing thus appearing pedunculate; base of vein between submarginal cells not constantly tending to be bent down at right angles and more rarely with a stump; interocular space in front of tubercle in known ♂♂ as broad as tubercle and about $1\frac{1}{2}$ to scarcely 2 times width of tubercle in ♀♀. 8 (♂♂), 9 (♀♀)
7. (a) Wings in ♀ (occasionally in ♂) with a deep yellowish brownish or brownish infusion, occupying a little less than or much less than entire basal two-thirds to a variable extent, at most extending to near apex of costal cell and across apex of discoidal cell, extreme base of second posterior cell to apical part of third posterior cell; wings in ♂ tinged greyish, only the base, costal cell, basal part of first basal cell and basal parts of second basal and anal cells more deeply tinged yellowish brownish to a variable extent; hairs and scaling on pleurae and coxae white or whitish; hairs on head in front relatively less dense and shorter, that on face on the whole paler, more whitish or silvery; scaling on body above more golden yellowish; black band on abdomen above broader; coxae tending to be darker. ♂ ♀ *fulvipes* (Lw.) and forms of it (p. 324)
- (b) Wings in both sexes equally and uniformly infuscated yellowish brownish or smoky brownish throughout, the base, costal part, first basal cell and to a certain extent second basal cell however slightly darker; hairs and scaling on pleurae and coxae golden yellowish like those in collar and mesopleural tuft; hairs on head in front relatively denser, slightly longer and those on face darker, brownish yellowish to black; scaling on body above deeper golden, more reddish or orange golden; black band on abdomen above narrower; coxae tending to be paler, more yellowish. ♂ ♀ *fumipennis* n. sp. (p. 327)
8. (a) Black band on abdomen above distinctly narrower, much narrower than reddish on sides; hairs on sides of thorax above, upper part of mesopleuron and on sides of tergite 1 deep yellowish; scaling on body above gleaming deep reddish golden. ♂ *karoana* n. sp. (p. 330)
- (b) Black central band on abdomen above much broader, much broader than narrowish red on sides, or the discal part above predominantly dark or black; hairs on sides of thorax, in upper part of mesopleural tuft and sides of tergite 1 much paler or whitish; scaling above tending to be paler golden or even more brassy yellowish. ♂ *angustibasalis* n. sp. (p. 328)
9. (a) Central, discal, black band on abdomen above broad to very broad, much broader than red on sides; wings with the infusion slightly paler, more greyish yellowish or greyish brownish. ♀ *angustibasalis* n. sp. (p. 328)

- (b) Central, discal, black band on abdomen very much narrower than broad reddish sides, the abdomen above being predominantly orange reddish; wings with the infusion on the whole darker, more brownish. 10
10. (a) Black central band on abdomen broader, band-like; wings slightly less tinged, more greyish brownish, without any stump at bent-down base of vein between submarginal cells; bristly hairs and bristles on basal part of thorax and across hind margin of scutellum black; larger form, about 10 mm. long, with a wing-length of about 12 mm. ♀ *angustibasalis* var. *buziana* n. (p. 329)
- (b) Black central band on abdomen very narrow, tending to be broken up into a row of oval discal spots; wings darker, distinctly tinged more uniformly yellowish brownish, with a short stump at bend of bent-down base of vein between submarginal cells; bristly hairs and bristles at base of thorax and across hind margin of scutellum reddish yellowish; smaller form, about 7 mm. long, with a wing-length of about 8½ mm. ♀ *imbutata* n. sp. (p. 330)

Petrorossia hesperus-section

To this section belong such species as *hesperus* subsp. *tropicalis* Bezz., *media* Séguéy and *fuscicosta* Bezz. in which the wings are usually predominantly hyaline or only slightly or faintly tinged basally and costally, the alula is broadish and lobe-like and the axillary lobe is also broad; the interocular space in front of ocellar tubercle is very much and markedly broader in ♀♀ than in ♂♂; and the apical margin of last sternite in ♂♂ slightly incised in the middle. *Hypopygium* of ♂♂ (text-fig. 113) with the beaked apical joints excavated or hollowed out dorsally, boat-like, the inner apical part produced into an upwardly directed spine-like process; the ramus, on each side from each basal part, uniting below aedeagus to form a pick-like downwardly directed aedeagal process; basal strut with a ledge-like extension on each side of its apical margin.

Petrorossia hesperus subsp. *tropicalis* Bezz.

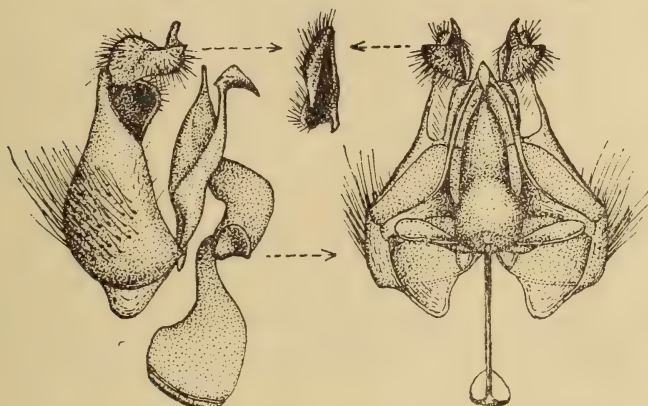
(Bezzi, p. 168, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 152, *The Bombyliidae of the Ethiopian Region*, 1924.)

This Ethiopian species of *Petrorossia*, which appears to be very widely distributed over the drier parts of the African continent and which appears to have become adapted to various types of environment within this great geographical range, was described by Bezzi as a distinct subspecies of the Palaearctic and North African species *hesperus* Rossi. As there are no specimens of *hesperus* s. str. in the collections for comparison I have to rely on descriptions of this Palaearctic species. According to the more comprehensive description of this species as given by Engel (p. 411, *Die Fliegen d. Pal. Reg.*, lief. 99, 1936) there appears to be, as Bezzi maintained, scarcely any external or structural differences between the South African forms and the European species. Pending a more detailed comparison of these two forms the South African forms are provisionally retained as a subspecies of *hesperus*. From the large number of specimens in the collections before me it is evident that even this subspecies *tropicalis* is not homogeneous, but variable in size, in the extent to which the femora are blackened, the extent to which dark hair is present on frons, the colour of the rest of the

hair and in other details given in the key and the description below. The chief characters of this subspecies are as follows:

Body variable in size, predominantly black; apical margin of antennal joint 1, buccal rims and to a variable extent inside of buccal cavity pallid or yellowish whitish; hind margin of metapleural plate, hind margin of tergite 1, sides below or extreme sides of abdomen, more broadly on sides of tergites 2 and 3, sometimes even hind margins of tergites on sides above, hind margins of sternites, more broadly on last two sternites, especially in ♀, or sometimes even greater part of venter, yellowish, ochreous yellowish or orange reddish to a variable extent; legs with the coxae usually dark or black in ♂, sometimes infused with yellowish reddish, especially on middle and hind ones in some ♀♀; femora yellowish or reddish yellow in ♂, the front and middle ones darkened or blackened basally, in basal halves, or even to much beyond middle, the hind ones entirely or predominantly darkened, in ♀ with only the bases of front ones and apical parts of hind ones darkened, or all the femora in some ♀♀ entirely yellowish; tibiae and more than basal halves of tarsi yellowish in both sexes, the hind tarsi and upper apical parts of posterior tibiae tending to be more brownish in some specimens. *Vestiture* with the hair on head gleaming pale sericeous yellowish to whitish, either without any, with a few, or with numerous black ones on frons and with some or without any dark ones on antennae above; that on body above gleaming predominantly very pale sericeous yellowish or almost whitish to slightly yellowish in certain lights; base of thorax above with some intermixed dark or black hairs and black bristly hairs across hind border of scutellum; prealar and postalar bristles whitish to pale sericeous yellowish; dense hair on sides of tergite 1 whitish, rarely tending to be tinted yellowish; that on sides of abdomen and also discally whitish or very pale sericeous yellowish in certain lights; that on mesopleuron and propleural part appearing more whitish than above; that on upper part of mesopleuron sometimes gleaming more sericeous yellowish like that above; hair on hinder half of abdomen and the bristly ones across hind margins of tergites 4-7 (or 8) dark or blackish; those on last three tergites, especially in ♀, longer and more conspicuous; hair on venter whitish; fine hair-like scaling above rather dense, appearing predominantly dull greyish to dull greyish yellowish, often with a slight brownish tint in certain lights; that on pleurae cretaceous or snow-whitish; that on venter dense and whitish; that on legs also cretaceous whitish, fine ones along upper surfaces of hind tibiae and tarsi dark. *Wings* usually predominantly hyaline, the extreme base and costal cell, especially the part behind false costal vein, tinted slightly subopaquely yellowish, but even the bases or basal halves of marginal and first submarginal cells, the entire first basal cell and to a lesser extent the second basal and base of more than basal half of discoidal cells, and even bases of third and fourth posterior cells sometimes tinged yellowish or yellowish brownish to a variable extent, more so in some ♀♀; veins yellowish brownish to brown; end of second main vein beyond the kink not much recurved; base of vein between submarginal cells usually rapidly

bent down at right angles or almost at right angles to third vein and tending to be provided with an indication of a (or a short) stump; alula lobe-like and axillary lobe broadish, broad at base, lobe-like, the wings not appearing pedunculate at base; squamae subopaquely whitish, white-fringed; halteres pale yellowish, their knobs very pale yellowish, almost whitish. *Head* with the interocular space in front of ocellar tubercle in ♂ about as broad as, or a little broader than, width of tubercle; space in front of tubercle in ♀ varying from 2 to



TEXT-FIG. 113. Side and ventral views of hypopygium, and dorsal view of beaked apical joint, of ♂ *Petrorossia hesperus* subsp. *tropicalis* Bezz.

a little more than 2 times width of tubercle; antennal joint 3 (text-fig. 112, left) ending in a joint-like basal element bearing a style and a crown of short hairs. *Legs* with the front coxae not more than half, usually a little less than half, as long as femora, with longish fine pale hairs on outer and lower surfaces of femora, especially front and middle ones; front and middle femora usually without spines, sometimes however with a minute spine at about middle in some specimens; hind femora with about 3–5 shortish spines on outer lower apical half and from 3 to 10 spinules on upper outer apical aspect, the apical ones the longest. *Hypopygium* of ♂ (text-fig. 113) with the dorsum of basal parts covered with bristly hairs, the outer margin in neck region however without conspicuous hairs; basal process of each basal part shortish; beaked apical joints excavated or hollowed out dorsally, boat-like (see dorsal view), the outer edge prominently raised rim-like, the inner apical part produced into an upwardly directed spine-like process, with the outer and upper outer surfaces covered with hairs; lateral rami from sides of basal parts uniting ventrally and apically below aedeagus to form a downwardly directed pick-like process; basal strut more or less ham-shaped, its apical margin produced on each side into a ledge-like extension.

In the Commonwealth Institute, British, Transvaal and South African Museums.

Length of body: about 4–8.5 mm.

Length of wing: about 4.6–10 mm.

Locality: Southern and Western Cape Province, Little Karoo, Koup Karoo Great Karoo, North-western Karoo, Namaqualand, Bushmanland, South-West Africa and Southern Rhodesia. According to Bezzi this subspecies is also found in North-western Rhodesia, Nyasaland, Northern Nigeria and Gambia.

Representatives of this subspecies are fairly common in Southern Africa and have the habit of settling on sand or soil between shrubs and bushes during the warmest part of the day. They also frequent the flowers of Composite-weeds growing in old lands and during spring and early summer they also visit the flowers of various species of *Mesembryanthemum*. Representatives of this subspecies, occurring in the very dry environments of Bushmanland, along the Orange River and the Huab plateau of South-West Africa, have practically no dark hair on the frons and the femora in the ♂♂ are less darkened. Specimens from the Koup Karoo, Great Karoo and dry western parts of the Little Karoo have more black hair on frons and have at least the basal halves of the front and middle femora in ♂♂ and some ♀♀ blackened. Others found in the Little Karoo and Namaqualand have the front and middle femora darkened to much beyond the middle in the ♂♂ and the entire hind femora dark in both sexes. Females from Southern Rhodesia have the femora entirely yellowish. The wings of some specimens obtained in the more mountainous parts of the western and southern Cape are distinctly more tinged. Two other varietal forms of this subspecies merit separate consideration as they may easily be mistaken for separate species:

One unique ♂-specimen, from the Great Karas Mts. in Great Namaqualand, differs from the more typical forms in being relatively larger and bulkier, about 9 mm. long, with a wing-length of about 9.3 mm.; the abdomen distinctly more broadly and more extensively reddened on sides, the hind margin and sides of tergite 2 and the entire hind margins of 3-7 also distinctly reddish; front and middle femora and tibiae entirely pale yellowish and only upper surfaces of hind femora more brownish; bristly hairs on base of thorax and across hind margin of scutellum entirely pale; wings with a more distinct tendency to be tinged yellowish at base, in costal cell, bases of marginal and first submarginal cells, first and second basal cells and basal parts of first posterior, discoidal and fourth posterior cells.

Another unique ♂-specimen, from Hex River (9 Jan. 1883), of which the head is missing, was wrongly mistaken for a ♀ and determined as *hesperus* by Bezzi (p. 120, *Ann. S. Afr. Mus.*, xviii, 1921). It is characterized in being very much larger and bulkier, about 8 mm. long (minus head), with a wing-length of about 10.5 mm.; the abdomen with the reddish on sides much broader, more extensive, the hind margins of all the tergites, but especially 3-7, entirely reddish yellow; hair on thorax above, upper part of mesopleuron and on sides of tergite 1 gleaming distinctly deeper sericeous yellowish to pale golden in certain lights; prealar and postalar bristles reddish golden and hair on sides of abdomen also more yellowish; wings very distinctly more deeply and more extensively tinged yellowish brownish in anterior basal two-thirds, the infusion imperceptibly grading into the more greyish hyaline apical and hinder parts,

the axillary lobe well developed; legs with the front and middle femora and greater part of hind ones as well as all the tibiae and at least basal halves of tarsi yellowish, only the upper apical part of hind femora darkened, the hind femora also with more numerous, about 5-7, spines along outer lower apical part and front ones with about 5 spinules in a row below.

Petrorossia vinula-section

To this section belong the species *vinula* Bezz., *masieneënsis* n. sp. and *plerophaia* n. sp. in which the wings are elongate, pedunculate, intensely and extensively infuscated in the form of a distinct pattern, with both the alula and axillary lobe reduced, the second main vein deeply looped at its end and the interocular space in ♂♂ relatively broad, only a little, or scarcely, narrower than in ♀♀. Apical margin of last sternite in ♂♂ arcuately rounded or truncate. *Hypopygium* of the ♂♂ (text-figs. 115, 116 and 117, right) with the beaked apical joints elongated, hollowed out above, their apical part twisted upwards and outwards and ending apically in an upper and a lower spine-like process; the upper one directed outwards over the lower (see figures); united apical part (or aedeagal process) of lateral rami produced blade-like; basal strut sub-racket-shaped and without a ledge-like extension along each side of its apical margin.

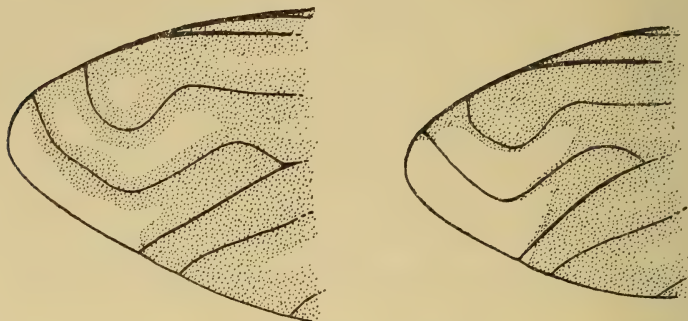
Petrorossia vinula Bezz.

(Bezzi, p. 120 and pl. ii, fig. 21, *Ann. S. Afr. Mus.*, xviii, 1921.)

This species and the following two new forms cannot be confused with any other species of *Petrorossia*. It may be recognized by the following characters:

Body black; hind margin of metapleural part, sides of tergites, slightly more broadly on tergite 2, hind margins of sternites or even greater part of venter, last sternite and usually hind margin of last tergite yellowish or orange reddish; legs predominantly yellowish or ochreous yellowish, the coxae tending to be dark, but middle and hind ones sometimes partly yellowish, the upper apical parts or even almost entire upper parts of hind femora, especially in some ♂♂, and in some specimens even the upper apical parts of the other femora and the apical parts of tarsi darkened or blackish; spines and spicules black. *Vestiture* on head predominantly black on frons and face, with some or numerous golden yellowish intermixed hairs on face especially apically; hairs on antennae above and below black; fine erect hairs on occiput gleaming golden or brownish in certain lights; that around rim of occipital cavity appearing dark or blackish in certain lights; hair on thorax above sericeous whitish to sericeous yellowish or even yellowish; prealar and postalar bristles reddish golden; hair in mesopleural tuft, propleural part and on coxae more whitish; that on sides of tergite 1 dense and whitish; rest of hair on sides of abdomen also largely sericeous whitish; that across hind margins of tergites 4-7 (or 8) black; that on venter sericeous whitish, black on last sternite and gleaming yellowish on ♂-hypopygium; scaling above deep reddish or brownish golden, sparse on frons;

that on sternopleuron and venter white; that on legs predominantly whitish. *Wings* as figured by Bezzi (loc. cit., pl. ii, fig. 21, and text-fig. 114, left), rather elongate, pedunculate, almost entirely infuscated dark coffee-brownish to dark chocolate-brownish, only the basal three-quarters of axillary lobe, a spot at apex of second basal cell, a largish and conspicuous spot in apical half of discoidal cell, ill-defined spots or areas medially in posterior cells, elongated curved spots in apical parts of first submarginal and second submarginal cells (along border of wing) clear or milky whitish, sometimes also with small evanescent whitish spot-like patches in apical part of marginal cell and medially



TEXT-FIG. 114. Wing-tips of *Petrorossia vinula* Bezz. (left), and *Petrorossia masieneensis* n. sp. (right)

in first submarginal and even first posterior cells; veins very dark brownish to blackish brownish; second main vein suddenly and deeply looped at its end, almost recurved; base of vein between submarginal cells obliquely bent down to third vein, without a stump at bend; middle cross vein in basal half of discoidal cell, nearer middle than in the *hesperus*-series; alula much reduced, vestigial; axillary lobe narrow, elongate; squamae subopaquely yellowish, white-fringed; halteres yellowish, the base above and basal infusion on knobs above brownish. *Head* with the interocular space in front of ocellar tubercle in ♂ relatively broad, varying from a little less than to a little more than 2 and to sometimes $2\frac{3}{4}$, times width of tubercle, a little or scarcely broader, about $2\frac{1}{2}$ to 3 times width of tubercle in ♀; frons medially distinctly more longitudinally depressed in front of tubercle in ♀ than in ♂; antennal joint 3 with the basal part broad and discoidal, from there slender, rod-like, ending in a terminal basal joint bearing a fine style and a crown of a few short hairs. *Legs* with the front coxae a little less than half as long as front femora; longish, fine, pale hairs present on outer and lower surfaces of femora, especially front and middle ones; front and middle femora without spines below; hind ones with about 3–5 spines in a row on lower outer apical part and irregularly disposed spinelets on upper apical aspect. *Hypopygium* of ♂ (text-fig. 115) differs from that of *hesperus* subsp. *tropicalis* in having a longer basal process to basal parts, longish bristly hairs also present along outer margin in neck region in apical half of basal parts; beaked

apical joints more scroll-like, the apical part curved outwards, ending apically in an upper and a lower spine-like process, the inner or upper one direct outwards; ventral aedeagal process produced into a blade-like process apically under aedeagus; basal strut more bat-shaped, its apical margin without a lateral ledge-like extension.

In the Commonwealth Institute, British, Transvaal and South African Museums.

Length of body: about $5\frac{1}{2}$ –11 mm.

Length of wing: about 6–12 $\frac{1}{2}$ mm.

Locality: Southern and South-western Cape and the Little Karoo to Namaqualand.

Members of this species frequent the shade among shrubs and small bushes, and their flight is relatively slow for a Bombyliid.



TEXT-FIG. 115. Side view of hypopygium, and apical and dorsal views of beaked apical joint, of ♂ *Petrorossia vinula* Bezz.

Petrorossia masieneënsis n. sp.

This species is the eastern subtropical representative of *vinula* and superficially resembles it very much. It differs from *vinula*, however, in having the wings on the whole more uniformly and diffusely coffee-brownish, less dark chocolate-brownish, the less-infused areas in the discoidal and posterior cells distinctly less clear and less defined, more greyish than whitish; the axillary lobe less contrastingly clear in basal three-quarters and less infuscated apically; the anal cell not much darker and not so conspicuously dark as in *vinula*; the apical parts of submarginal cells (text-fig. 114, right) more extensively or entirely clear, there being no broad infusion along vein separating them as in *vinula*. Some distinct very dark or black bristly hairs are present across hind border of scutellum and across hind margin of tergite 1. *Hypopygium* of ♂ (text-fig. 116) differs from that of *vinula* in having the beaked apical joints relatively longer, their apical half more slender, their outer rim-like edge less raised or prominent and in having a slightly broader, less bat-shaped basal strut.



TEXT-FIG. 116. Side view of hypopygium and dorsal and apical views of beaked apical joint of ♂ *Petrorossia masieneënsis* n. sp.

From a ♂ and ♀ in the South African Museum.

Length of body: about 8–9 $\frac{1}{2}$ mm.

Length of wing: about 10–10 $\frac{1}{2}$ mm.

Locality: Portuguese East Africa: Masiene (Lawrence, Dec. 1923).

Petrorossia plerophia n. sp.

This species also belongs to the *vinula*-group, resembling *vinula* and *masieneënsis* superficially but differing in the following respects:

Body with the reddish yellow or orange reddish on sides of abdominal tergites slightly broader, being sometimes more conspicuous on sides of tergites 2 and 3 or 2-4; legs also predominantly yellowish, the coxae even tending to be more yellowish than in *vinula*, the upper surfaces or upper apical parts of hind femora usually infused with brownish, sometimes however entirely yellowish, apical parts of tarsi darkened as in *vinula*. *Vestiture* on face usually, or even entirely, yellowish sericeous to golden yellowish, fewer black hairs being present, rarely almost entirely dark; that on frons either yellowish basally and with more black hair anteriorly or entirely blackish; that on antennae black above and below; hair on thorax above more straw-coloured whitish; that in mesopleural tuft white; that on scutellum and abdomen predominantly sericeous whitish; bristly hairs across hind margins of tergites 5-7 (or 8) also predominantly blackish or with numerous black ones; hair on venter gleaming sericeous whitish; fine scaling above gleaming more brassy yellowish than deep reddish golden; scaling on legs and venter also whitish as in the other two species. *Wings* distinctly more uniformly and more homogeneously yellowish brownish than in the preceding two species, appearing less dark, the slightly less-infused medial parts of the cells, if indicated, ill-defined and not contrastingly clear; apex of wings (text-fig. 117, left) from apex of costal cell more or less straight across to apex of first posterior cell entirely and conspicuously clear vitreous hyaline, a character which at once distinguishes it from *vinula* or *masieneënsis*; greater part or entire axillary lobe also clear or greyish hyaline and even basal to two-thirds or three-quarters of anal cell clear or clearer in some specimens; second vein also deeply looped at end as in the other two species; alula and axillary lobe reduced to the same extent and the wings thus also appearing pedunculate; halteres predominantly yellowish, their knobs entirely or more extensively yellowish above. *Head* with the interocular space in front of tubercle in ♂ about 2 to a little more than 2 times width of tubercle, about $2\frac{1}{2}$ to about 3 times as broad as tubercle in ♀; antennae (text-fig. 112, middle) as in *vinula* and *masieneënsis*. *Legs* with a variable number, 2-4, spinelets in a row along lower apical part and about 3-8 irregularly disposed spinelets on upper apical part of hind femora. *Hypopygium* of ♂ is nearest to that of *masieneënsis* (cf. text-fig. 116), differing only in the shape of the beaked apical joints (text-fig. 117, right) which appear less elongate, with a more prominent, higher and distinctly more raised outer rim and with a more prominent apical spine. From the beaked apical joints of *vinula* they differ in having a distinctly longer apical part and a more prominently raised outer rim.

From 11 ♂♂ and 8 ♀♀ (types in the South African Museum, paratypes in the Commonwealth Institute, Deutsches Entomologisches Institut, Durban, Rhodesian and Transvaal Museums).

Length of body: about 5–12½ mm.

Length of wing: about 6–14 mm.

Locality: South-West Africa: Great Karas Mts. in Great Namaqualand (Mus. Exp., Nov. 1936) (types). Southern Rhodesia: Hopefontain (Stevenson, 30 Aug. 1922); Sawmills (Rhod. Mus., 11 Nov. 1920; Stevenson, Dec. 1923); Sanyati Valley (Stevenson, Dec. 1925); Victoria Falls (H. E. L., 24 Aug. 1920); Bembesi River (Stevenson, 5 Sept. 1926); Khami (Rhod. Mus., 6 Nov. 1926). Transvaal: Montrose (Lingau, 11 Jan. 1926); Magalieskraal (Lingau, 31 Jan. 1926). Zululand: Manguzi River near Maputa (Bell-Marley, Nov.–Dec. 1945).



TEXT-FIG. 117. Wing-tip of *Petrorossia plerophala* n. sp., and (right) side, dorsal, and apical views of beaked apical joint of hypopygium of ♂ of same species.

This species appears to be variable in size, in the coloration of the hair on frons and face, in the presence or absence of a dark infusion on upper surfaces of hind femora, in the extent of the yellowish on sides of abdomen and in the extent of infuscation in anal cell and apex of axillary lobe. The paratype, from Magalieskraal, even has the yellowish on sides of abdomen much reduced. The ♀-paratype, from the Victoria Falls, has all the hair on frons entirely or predominantly black. This species seems to occur in grass savannah type of country whereas *vinula* is confined to the semi-arid scrub or Karooid type of environment. On the other hand *masieneënsis* occurs in the subtropical wooded eastern part.

Petrorossia fulvipes-section

This section includes the species *fulvipes* (Lw.), *fumipennis* n. sp., *gratiosa* Bezz., *chapini* Curr., *angustibasalis* n. sp., *karooana* n. sp. and *imbutata* n. sp. in which the abdomen is either broadly orange reddish on sides or even predominantly orange reddish; interocular space narrow in both sexes and the frons shining in both sexes; body on the whole less hirsute above, covered with dense, brightly gleaming golden tomentum, especially on sides of thorax; wings often particolored in ♀♀, or the axillary lobe is markedly reduced (see text-fig. 118,

lower figure); femora without longish fine hairs on outer and lower surfaces, these hairs being short; hind femora in ♂♂ with a distinct row of spines also on inner side below. Apical margin of last sternite in ♂♂ is arcuately rounded or subtruncate. *Hypopygium* of ♂♂ (text-figs. 119-21) with the beaked apical joints less curved or twisted, appearing more tin-opener-like from side, ending apically in an upper and a lower spine-like process or sometimes even in three processes, with the outer apical part of the joints sometimes excavated (text-fig. 119), sometimes with a subapical spine-like process on inner margin (text-fig. 120); united apical part (or aedeagal process) of lateral rami from basal parts in form of a downwardly directed hammer-head-shaped process which is bifid or bidentate apically; lateral struts longish, broad and well developed; basal strut with a lateral ledge-like extension on each side of apical margin and usually chopper-shaped.

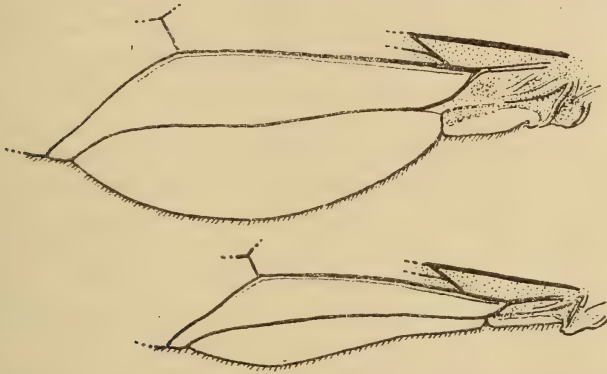
Petrorossia fulvipes (Lw.)

(Loew, p. 210 and tab. ii, fig. 14, *Dipt. Faun. Südafr.*, i, 1860 (as *Anthrax*); Bezzi, pp. 120 and 121, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 154, *The Bombyliidae of the Ethiopian Region*, 1924; Curran, p. 38, *Bull. Amer. Mus. Nat. Hist.*, lvii, 1927-8; Séguéy, p. 118, *Bull. Mus. Nat. d'Hist. Nat.*, (2), iii, 1931.)

Loew's original description of this species was based on a ♂-specimen. Subsequently in 1924 Bezzi described the ♀ and in 1938 Curran gave still another description of the ♀ based on two specimens from Stanleyville in the Congo. The fact that the wings of the ♀♀ in this group are either differently infuscated or more intensely infuscated than in the ♂♂ has probably led to some confusion in allocating ♀♀ specifically to their respective ♂♂. Judging from the long list of localities, sometimes very widely separated in Africa, given by Bezzi (loc. cit., 1924) for ♂♂ and ♀♀ of *fulvipes*, there is a possibility that all these specimens do not belong to this species, especially when the fact be borne in mind that four new species and an additional new variety from Southern Africa, which superficially resemble *fulvipes*, are described below and that in the species *gratiosa*, described by Bezzi (p. 155, *The Bombyliidae of the Ethiopian Region*), it is quite evident from the illustration of the wing (loc. cit., fig. 13) of a supposed ♀-*gratiosa* that the latter obviously belongs to some variety of *fulvipes*. The characters of *fulvipes*, as based on a series of both sexes before me, are as follows:

Body with the head and thorax mostly black; rings around antennal insertions and the buccal rims ivory yellowish; humeral part, to a certain extent sides of thorax and the postalar calli dark ferruginous brownish; hind margin of metapleural part, sides of abdomen very broadly, usually broader in ♀ than in ♂, and entire or greater part of venter reddish yellowish or orange reddish, only a broad central longitudinal band above black, this band narrower in ♀, rarely very broad, and usually narrower than orange reddish on sides and in both

sexes usually broadest on tergites 1 and 2, tending to be narrowest between tergites 2 and 3 or 2 and 4, sometimes much broadened posteriorly, rarely with the black encroaching on the sides, the hind margin of tergite 1 and those of posterior tergites usually reddish even discally and hind margins of sternites (if venter is not entirely reddish) broadly reddish; hypopygium of ♂ also yellowish reddish; front coxae usually black, the middle and hind ones sometimes infused with reddish to a variable extent; femora, tibiae and part of tarsi predominantly yellowish or ochreous yellowish, the extreme upper apical part



TEXT-FIG. 118. Alula, axillary lobe, and anal cell of ♀ *Petrorossia fulvipes* (Lw.) (upper figure) and ♀ *Petrorossia angustibasalis* n. sp. (lower figure).

of hind femora darkened, especially in ♂, apical parts of tibiae, the entire hind tarsi and greater part of the others brownish. *Vestiture* with the hair less developed than in all the preceding species, relatively much shorter; fine hairs on frons and antennae above and below black; that on face gleaming greyish or silvery whitish in certain lights; greyish or silvery pruinescence also present on sides of frons in front and on face; very fine and short hair on occiput dark, becoming yellowish or brownish golden around the margin of cavity and silvery on sides; longer hairs in collar and along sides of thorax above and on upper part of mesopleuron gleaming deep golden to brownish golden; very fine sparse hairs discally dark; prealar and postalar bristles reddish golden; some bristly hairs across base of thorax and across hind margin of scutellum black; hair on rest of mesopleuron, propleurae and coxae silvery whitish; that densely on sides of tergite 1 yellow, deep golden to orange golden; rest of hair on sides of abdomen also gleaming golden, but that on sides and also discally on tergites 2-7 (or 8) black; that on venter gleaming sericeous whitish to yellowish; scaling above very dense on sides and base of thorax and on scutellum and in form of dense deep reddish or orange golden tomentum; that on sternopleuron and in tufts on mesopleuron in form of more hair-like silvery scaling; that on venter sparse and sericeous whitish; that on legs predominantly whitish, but with slight golden gleams on upper surfaces of femora and tibiae in certain lights, with dark hair-like scaling on upper surfaces of hind tibiae. *Wings* in ♂

as figured by Loew (loc. cit., tab. ii, fig. 14), predominantly greyish hyaline, the base, alula, costal cell, basal part or upper basal part of first basal cell and to a lesser extent base or basal part of second basal cell and extreme base of anal cell subopaquely infused with yellowish or yellowish brownish; in ♀ rarely like in ♂, usually slightly broader, particoloured to a slightly variable extent, the entire basal two-thirds up to level of apex of false vein in costal cell and more or less straight across just in front of base of second submarginal cell to apex of fourth posterior cell more or less uniformly yellowish brownish to pale coffee-brownish, this infusion sometimes less well marked off and imperceptibly grading into hyaline apical part, sometimes even less extensive, not even reaching apex of discoidal cell and in some specimens occupying only anterior basal part, even leaving hinder part, anal cell, and axillary lobe clear (a single ♂ which Mr. Francois collected in Ruanda-Urundi and which is in the Musée d'Histoire Naturelle de Belgique in Brussels has particoloured wings like a ♀); veins reddish yellow or reddish brownish; second vein with the loop at end less deep than in preceding species; base of vein between submarginal cells usually bent down at right angles and more often with a short stump at bend; alula reduced and narrowish and the axillary lobe (text-fig. 118, upper figure) elongate, broadish, broader than anal cell and its base not sharply acute, the base of wings thus not appearing pedunculate; squamae opaquely yellowish whitish, the fringe feeble, in form of very short and sparse pale hairs; halteres yellowish, their knobs almost whitish. *Head* with the interocular space in front of tubercle in ♂ narrow, much narrower than in ♂♂ of all the preceding species, a little broader than ocellar tubercle, the space in ♀ about 2, or a little more, times as broad as tubercle; frons more or less shining in both sexes, medially longitudinally depressed in front of tubercle in ♀; antennal joint 3 (text-fig. 112, right) broadened bulb-like basally, not broadly discoidal, the slender rod-like apical part ending in a terminal joint bearing a style and no crown of hairs. *Legs* with the front coxae distinctly longer than half length of front femora; femora with only short fine pale hairs and very short fine, relatively sparse, dark scale-like hairs; hind femora in ♂ with a row of about 11-13 spines from base to apex on inner lower part and about 3-5 on outer lower apical part, without any spines on inner lower aspect in ♀, but with about 3-4 on outer lower apical part, with some spinelets on upper apical aspect in both sexes, sometimes with 1 spine on front femora below in some ♂♂. *Hypopygium* of ♂ (text-fig. 119) with longish stoutish bristly hairs across dorsum of basal parts; beaked apical joints scarcely curved, elongate, excavated apically on outer part, the excavation bounded above apically by a spine-like process and below apically by two smaller spines (shown in figures); ventral aedeagal process, formed by lateral rami from basal parts, in form of a downwardly directed hammer-head-shaped process which is bifid apically; lateral struts rather broad and well developed; basal strut more or less chopper-shaped.

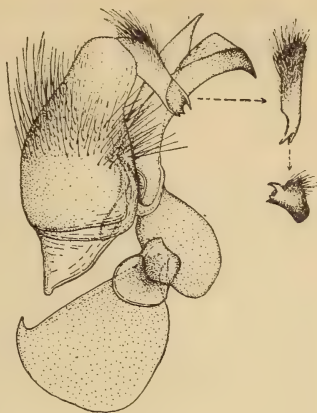
In the Transvaal, Natal, Durban and South African Museums and in the South Rhodesian Agricultural Department and Commonwealth Institute.

Length of body: about $6\frac{1}{2}$ – $10\frac{1}{2}$ mm.

Length of wing: about $7\frac{1}{2}$ – 12 mm.

Locality: Koup Karoo, southern parts of the Great Karoo, Eastern Cape, Natal, Zululand, Portuguese East Africa and Southern Rhodesia. According to Bezzi and Curran it also occurs in East and West Africa.

As is evident from the above description and from the remarks of Bezzi this species appears to be variable. Certain ♀-specimens, from the Koup Karoo and southern Great Karoo, differ from the Natal and South East African ♀♀ in having the infusion in the wings distinctly much less extensive and less dark, practically occupying only the anterior basal part and not extending to anal cell, axillary lobe and hind border. Another ♀, from Durban, has the infusion even more extensive than in other Natal specimens and extending even to beyond base of vein between submarginal cells; its hair on the face also has more numerous intermixed black hairs. Two ♀♀ from Natal in the Commonwealth Institute have the wings slightly infuscated like ♂♂, and the abdomen above is predominantly dark. Another ♀ from Umbilo in Natal, collected by Mr. Bell-Marley, has the following note attached to it: 'From mud nest of *Synagris analis* Sauss. egg smuggled in with spider by ♀ wasp before sealing up.'



TEXT-FIG. 119. Side view of hypopygium, and oblique dorsal and apical views of beaked apical joint, of ♂ *Petrorossia fulvipes* (Lw.).

Petrorossia fumipennis n. sp.

Two specimens (♂ and ♀) from Zululand in the collections before me, though superficially resembling *fulvipes*, nevertheless show certain characters which appear to be of specific value and which thus exclude the possibility of any varietal extremism. From *fulvipes* they differ in the following respects: *Body* with the longitudinal black band on abdomen above relatively narrower, especially in ♀; coxae tending to be paler, more yellowish. *Vestiture* with the hairs on head in front relatively denser and slightly longer; that on face darker, entirely black or dark in ♂ and more yellowish or brownish in ♀; hair and scaling on pleurae and coxae golden yellowish, scarcely paler golden than those in collar and mesopleural tuft; scaling on body above deeper reddish or orange golden. *Wings* in both sexes equally, entirely and uniformly rather darkly infuscated yellowish brownish or smoky brownish, but with the basal and costal part, first basal cell and to a certain extent second basal cell slightly darker; discoidal cell tending to be slightly more acute apically.

The ♂-holotype in the South African Museum and ♀-allotype in the Durban Museum.

Length of body: about $9-9\frac{1}{2}$ mm.

Length of wing: about $10-10\frac{1}{2}$ mm.

Locality: Zululand: Manguzi River near Maputa (Bell-Marley, Nov.-Dec. 1945).

Petrorossia angustibasalis n. sp.

This species also superficially resembles *fulvipes* but when compared with the latter it may be recognized and distinguished by the following characters:

Body with the reddish or orange reddish on sides of abdomen in the typical form distinctly less broad and less extensive, the central black band above relatively much broader and even in ♀ usually very much broader than red on sides, the greater discal part of abdomen above sometimes predominantly black; legs similarly coloured but hind femora in at least apical third, especially in ♂, distinctly more extensively and more conspicuously darkened. *Vestiture* on frons, antennae and face even slightly shorter than in *fulvipes*; that on frons and antennae above black; that on the silvery pruinose face either entirely silvery whitish or with an admixture of black hairs in some specimens; that on antennae below composed of dark and whitish intermixed hairs; longish hairs in collar above, on sides of thorax, upper part of mesopleuron and on sides of tergite 1 less yellow than in *fulvipes*, usually more whitish or straw-coloured whitish, not deep orange yellowish; that on anterior part of pleurae, coxae and venter also sericeous whitish; pale hair on extreme sides of abdomen sometimes slightly more yellowish than that on tergite 1; short and very sparse hairs discally on thorax, some bristly hairs at base of thorax and across hind border of scutellum and the rest of the bristly hairs and short discal hairs on tergites 2-7 (or 8) black; prealar and postalar bristles yellowish to golden; scaling above deep reddish golden, disposed as in *fulvipes*; that on pleurae and legs also white. *Wings* unlike those of



TEXT-FIG. 120. Side view of hypopygium, and dorsal and oblique apical views of beaked apical joint, of ♂ *Petrorossia angustibasalis* n. sp.

fulvipes in that they are distinctly narrower, almost clear hyaline in ♂ and greyish or only feebly tinted greyish yellowish in ♀, not deeply brownish and particoloured; base, costal cell and upper part of first basal cell in ♂ and in addition the entire first basal cell in ♀ subopaquely yellowish or very pale yellowish brownish; base of vein between submarginal cells not so constantly tending to be bent down at right angles, only occasionally with a short stump at bend; alula more reduced than in *fulvipes*, vestigial, and axillary lobe (text-fig. 118, lower figure) very much narrower, distinctly more reduced than in *fulvipes*, narrower than anal cell, its base very narrow, the base of wings thus narrow, pedunculate. *Head* with the interocular space in front of tubercle in ♂ relatively

narrower than in *fulvipes*, only about as wide as, or even appearing slightly narrower than, narrow tubercle, in ♀ also narrower, about $1\frac{1}{2}$ – $1\frac{3}{4}$ times width of tubercle; frons more converging towards ocellar tubercle in both sexes, its central longitudinal depression in ♀ slightly deeper; antennal joint 3 as in *fulvipes*. Legs with about 9–14 spines on inner lower part of hind femora from base to apex in ♂, with about 3–4 spines on outer lower apical aspect and a variable number of spines on upper apical part in both sexes; middle femora in ♂ sometimes with 1 or 2 spinelets near middle. *Hypopygium* of ♂ (text-fig. 120) with the basal parts like those of *fulvipes*; beaked apical joints shaped as shown in figures, ending apically in an upper and a lower spine-like process, but with an additional subapical spine on inner side (see dorsal view); aedeagal process bifid apically when viewed from below; lateral struts long, well developed; basal strut much like that of *fulvipes*.

From 6 ♂♂ and 7 ♀♀ (types in the South African Museum, paratypes in the Rhodesian, Transvaal and British Museums and in the Agricultural Department of Southern Rhodesia).

Length of body: about 5–8½ mm.

Length of wing: about 6½–10 mm.

Locality: Zululand: Mfongosi (Jones, April–May 1931, and Dec. 1916) (types); Mfongosi (Jones, March 1914, April 1916); Hluhluwe (Zumpt, 18 Jan. 1950); Natal: Kloof (Marley, Feb. 1915); Weenen (Thomasset, Sept. 1926). Pondoland: Port St. Johns (Turner, March 1923). Southern Rhodesia: Bulawayo (Rhod. Mus., 4 Dec. 1927); Bulawayo (Stevenson, 1 Dec. 1923, and 19 Dec. 1924); Lomagundi (Collins, 5 March 1940).

As far as wing-characters are concerned this species comes very near the Nigerian species *gratiosa* Bezz. (p. 616, *Trans. Ent. Soc. Lond.*, 1911), of which the wing is figured (fig. 12, p. 155, *The Bombyliidae of the Ethiopian Region*, 1924). From Bezzi's original description and subsequent notes it appears to differ from *gratiosa* in not having yellow hair on pleurae and in having the dorsum of abdomen predominantly black or with a broad black central band. The ♀-paratype from Lomagundi has the following note attached to it: 'at nests of "wasps" in mud walls of hut'. Like other species of this genus it also appears to be variable and a ♀-specimen from Portuguese East Africa may be referred to a distinct variety as follows:

Petrorossia angustibasalis var. *buziana* n.

This ♀-specimen differs from typical ♀♀ in being distinctly larger, about 10 mm. long, with a wing-length of about 12 mm.; abdomen predominantly orange reddish, the central black band above narrow, very much narrower than red on sides, the band becomes narrower posteriorly and does not continue on to last tergite; hair on thorax in front, on sides, upper part of mesopleuron, sides of tergite 1 and sides of abdomen very deep golden or orange yellowish as in *fulvipes*, not whitish; wings tinged slightly darker than in typical ♀♀; interocular space in front of tubercle about 2 times width of tubercle. From ♀♀ of

ulvipes it may at once be distinguished by the non-particoloured wings and the very much reduced alula and axillary lobe.

From a ♀ in the Agricultural Department of Southern Rhodesia.

Locality: Portuguese East Africa: Buzi River (Williams, 30 Nov. 1939).

Petrorossia karooana n. sp.

This unique ♂-specimen superficially resembles a ♂ of *fulvipes* but may at once be distinguished by its narrow interocular space which is only about as broad as ocellar tubercle, the intermixed pale hairs on antennal joints 1 and 2 below, the clear hyaline wings with a vestigial alula and very much reduced axillary lobe and the more extensive black on upper apical third of hind femora. From the ♂ of *angustibasalis* it differs in having more extensive and distinctly broader orange reddish on sides of abdomen, the central black band being distinctly



TEXT-FIG. 121. Side view of hypopygium, and dorsal and oblique apical views of beaked apical joint, of ♂ *Petrorossia karooana* n. sp.

narrower than red on sides; the hair across front part of thorax, sides of thorax, upper part of mesopleuron and on sides of tergite 1 distinctly more golden yellowish, not whitish. *Hypopygium* (text-fig. 121) resembles that of *angustibasalis* (cf. text-fig. 120) but differs in having the subapical spine on inner side of beaked apical joints situated nearer apex and more dorsally, the apices of joints thus appearing tridentate, with the middle spine directed more horizontally outwards; lateral struts slightly shorter, but also broad; apical margin of basal strut with a more distinct ledge-like extension.

From a ♂ in the Transvaal Museum.

Length of body: about 8 mm.

Length of wing: about $8\frac{1}{2}$ mm.

Locality: Karoo: Willowmore (Brauns).

Petrorossia imbutata n. sp.

A somewhat damaged ♀-specimen in the collections before me is very near *angustibasalis* and its variety *buziana*. The chief characters which distinguish it from these and by means of which it may be recognized are as follows: *Abdomen* predominantly orange reddish, the black discally above very much reduced, represented only by a central row of oval spots, one on each tergite, the basal one the largest. *Vestiture* on head as in *angustibasalis*; that on thorax in front, on sides, upper part of mesopleuron and sides of tergite 1 gleaming deep golden yellowish as in var. *buziana*; that on front part of pleurae whitish; prealar, postalar and scutellar bristles all deep reddish golden, there being no dark or black ones on scutellum; scaling above also deep reddish golden and disposed as in *angustibasalis* and its variety. *Wings* distinctly darker, uniformly tinged reddish brownish throughout, slightly darker than even in var. *buziana*;

base of vein between submarginal cells bent down at right angles to third vein and in this specimen provided with a short stump at bend; alula and axillary lobe as reduced as in preceding two species; discoidal cell tending to be distinctly less acute apically. *Head* with the interocular space in front of tubercle narrow, distinctly a little less than 2 times width of tubercle, thus relatively narrower than in var. *buziana*. *Legs* also predominantly yellowish, only the hind tarsi and apical parts of the others darkened; hind femora with about 3 spines on outer lower apical part and with 4 or 5 spines on upper apical part.

From a ♀ in the South African Museum.

Length of body: about 7 mm.

Length of wing: about $8\frac{1}{2}$ mm.

Locality: South-West Africa: Kaross in the Kaokoveld (Mus. Exp., Feb. 1925).

Other species of *Petrorossia* not seen by me

Five other species of *Petrorossia* have been described or reported south of the Sahara. Owing to the wide range and variability of species of this genus, varieties or races of some of these species may be found to occur along the northern limits of the geographical areas dealt with in this revision. The five species are as follows:

Petrorossia fuscicosta Bezz.

(Bezzi, p. 153, *The Bombyliidae of the Ethiopian Region*, 1924.)

Bezzi based his description of this species on two ♂♂ obtained from Abyssinia, and according to his description this species can be easily recognized by the presence of a blackish brown base and stripe on fore-border of wings, extending to end of first main vein and posteriorly to fourth main vein as far as end of first basal cell and including bases of second and anal cells. This species probably belongs to the *hesperus*-section.

Petrorossia letho (Wied.)

(Wiedemann, p. 566, *Aussereurop. Zweifl. Ins.*, i, 1828 (as *Anthrax*);

Bezzi, p. 66, *Trans. Ent. Soc. Lond.*, 1911; Bezzi, p. 153, *The Bombyliidae of the Ethiopian Region*, 1924; Engel, p. 412, *Die Fliegen d. Pal.*

Reg., lief. 99, 1936.)

According to the various authors this species appears to be widely distributed in the Near East, Eastern Mediterranean, North Africa, Nubia, Erythraea, Anglo-Egyptian Sudan, Nigeria, Kenya and Nyasaland. From the various descriptions it obviously belongs to the *hesperus*-series, but does not appear to differ much from some varietal forms of *hesperus* or *hesperus* subsp. *tropicalis*. The only distinguishing characters which are emphasized seems to be the fact that in *letho* the abdomen has more extensive red, the hair on frons is entirely whitish and the base of vein between submarginal cell lacks an appendix. Some varietal forms of *hesperus* subsp. *tropicalis* dealt with in this revision however

also have predominantly whitish hair on frons. Only a careful examination and comparison of numerous specimens of both sexes from a large number of localities of such variable North African and Ethiopian forms as *hesperus* Rossi, *hesperus* subsp. *tropicalis* Bezz., *latifrons* Bezz., ? *albifacies* Macq. (Bezz.), *letho* (Wied.) and *media* Séguy will elucidate the problem of their specific status over widely separated geographical regions and the validity of their claim to separate specific or varietal identity.

Petrorossia media Séguy

(Séguy, p. 117, *Bull. Mus. Nat. d'Hist. Nat.*, (2), iii, fig. 4, 1931.)

A species described from Chiramba on the Zambezi River in Portuguese East Africa by Séguy and which, according to the description of the ♀, appears to be very near, if not a form of, *hesperus* subsp. *tropicalis*. It appears to differ only in having black femora and brownish hind margins to the tergites and much shorter wings in relation to length of body.

Petrorossia chapini Curr.

(Curran, p. 39, *Bull. Amer. Mus. Nat. Hist.*, lvii, 1927-8.)

This species, described by Curran from a ♀ collected at Stanleyville in the Congo, obviously belongs to the *fulvipes* and *gratiosa*-section. According to the description it differs from *fulvipes* chiefly in having the abdomen almost entirely orange reddish and in having golden reddish, instead of silvery whitish, pile on pleurae. From the description there is a suspicion that it may prove to be merely a ♀ or a variety of *gratiosa* Bezz., for this latter species, according to Bezzi, also has golden pile on the pleurae and a predominantly orange reddish abdomen.

Petrorossia gratiosa Bezz.

(Bezzi, p. 616, *Trans. Ent. Soc. Lond.*, pl. L, fig. 14, 1911; Bezzi, p. 155, *The Bombyliidae of the Ethiopian Region*, 1924.)

As was stated under *fulvipes*, there is a suspicion that all the ♀-specimens from Nigeria which Bezzi referred to *gratiosa* may not all be conspecific with his ♂-*gratiosa*, but judging from his illustration of the wing and his statement that the abdomen has a black discal band, they may prove to belong to some form or variety of *fulvipes*. On the other hand the description of Curran's ♀-*chapini* (loc. cit., under *chapini*) suggests a relationship with *gratiosa*. According to Bezzi's notes and illustrations of the wing of the ♂-*gratiosa* (loc. cit., 1924), the species *gratiosa* comes in the same category as *angustibasalis* n. sp. described in this revision, but differs in having a predominantly orange reddish abdomen, predominantly black hair on face and golden hair on the pleurae.

Pteraulax and *Pteraulacodes*-group

This group is characterized by the presence of three submarginal cells in the wings, the relatively long terminal joint of third antennal joint, the markedly elongate and cylindrical body and abdomen, the comparatively sparse hairs on

body, the presence of strongly developed bristles on abdomen, and the long, bristle-like spines on hind femora below.

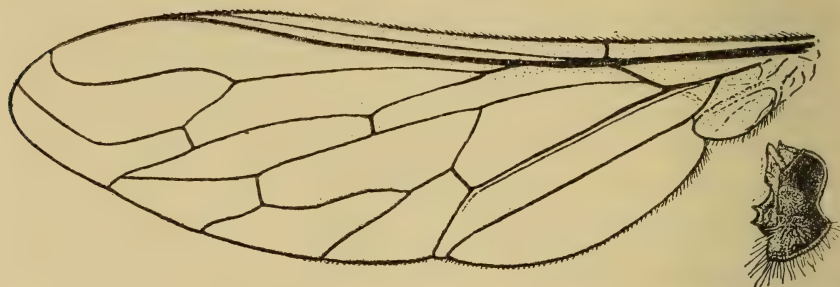
Gen. *Pteraulax* Bezz.

(Bezzi, p. 117 and pl. ii, fig. 20, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 27, *The Bombyliidae of the Ethiopian Region*, 1924.)

Bezzi's description of this genus was based on a ♂ and a ♀ from Bushmanland. In the large collections before me there are represented not only a series of the genotype-species, but also representatives of at least six other undescribed forms. The chief characters of this genus, as based on all these species, are as follows:

Body tending to be elongate; abdomen more elongate and cylindrical in ♂♂, pointed apically in ♀♀; colour predominantly black, appearing greyish due to greyish whitish pruinescence; buccal cavity and palps usually yellowish or pallid; sides of abdomen and hind margins of sternites yellowish or yellowish reddish in most species; legs with the femora either entirely black or yellowish below and at extreme apices to a variable extent, the tibiae and basal parts of tarsi either entirely yellowish or hind tibiae and tarsi blackish. *Vestiture* with the hair not very dense or shaggy; that on vertex, frons and face fairly dense; that on antennal joints 1 and 2 above and below much like that of *Petrorossia*, not bushy as in *Lomatia*; that on disc of thorax short, fine and not very dense; that anteriorly and antero-laterally longer; that on mesopleuron dense and tuft-like, with erect hairs present only on sternopleuron and propleural part; a metanotal tuft wanting; prealar, postalar and scutellar bristles very well developed and long; hair on abdomen very dense only on sides of tergite 1, rather sparse on rest of tergites, longer on abdomen in ♂♂; transverse bristly hairs or bristles across hind margins of tergites and sternites on the whole strongly developed, sometimes in form of conspicuous, stoutish and stiffish, spine-like bristles, especially in ♀♀; terminal genital tuft in ♀♀ dense, gleaming sericeous yellowish or fulvous yellowish to golden; hairs on venter sparse; scaling mostly in form of lanceolate scales; that on thorax above finer, dense on mesopleuron, sternopleuron and coxae; rest of pleurae bare or with greyish pruinescence; scaling on abdomen fairly dense, with fairly conspicuous, cretaceous whitish, lanceolate ones on sides and in transverse bands across hind margins of tergites or as discal patches; rest of scaling on abdomen above either dull ochreous yellowish, ochreous brownish, dark or even black, the paler ones often arranged in longitudinal bands; scaling on venter and on legs dense and usually whitish. *Wings* (text-fig. 122) narrowish, vitreous or feebly greyish hyaline in known species, only the base, alula and costal cell feebly subopaquely whitish or very pale yellowish whitish; membrane strongly wrinkled or folded; basal comb almost absent; three submarginal cells present; first posterior cell characteristically closed and acute apically, provided with a short stalk; middle cross vein either a little before or a little beyond middle of discoidal cell; anal cell subparallel-sided for greater part of its length, narrowed apically; axillary

lobe fairly well developed, only slightly reduced in some forms; alula not markedly reduced, sometimes even rounded and broadish; squamae (text-fig. 122, below, in natural proportion to wing) characteristic, very well developed, fairly large, broad and auriform, usually opaquely yellowish whitish, sometimes with hairs or hair-like scales on surface as well as along hind margin. *Head* large, spherical, usually broader than thorax; eyes very well developed, large, angularly indented behind and with a distinct, short bisecting line extending forwards from indentation, in contact above for some distance in front ocellar tubercle in ♂♂, separated in ♀♀ by a space on vertex about 2 to 3 times distance



TEXT-FIG. 122. Left wing of *Pteraulax flexicornis* Bezz., and (below) left squama of the same species.

between outer margins of posterior ocelli; upper facets in ♂♂ coarser than lower ones; occiput with the central sulcus behind ocellar tubercle slit-like or gap-like, the two lobes not in contact; ocelli on raised tubercle, the front one farther forwards than space between posterior ones; frons in ♂♂ slightly convex or tumid, only so anteriorly in ♀♀, distinctly more or less transversely depressed in front of tubercle in ♀♀ and more or less shining in basal half; antennae (text-fig. 123) separated at base, joint 1 broadened apically, much broader than smallish, transverse, subglobular joint 2 which is situated socket-like in its apical excavation, joint 3 broadened bulb-like, leek-like or club-like basally, ending apically in a longish terminal joint bearing a longish style; face short, roundly convex, sloping gradually into buccal cavity; genae narrow and genal furrows deep and distinct; proboscis usually short and stumpy, rarely slender, its labellar lobes broadish, ovate, well developed, usually provided with hair-like spinules; palps either shortish or more usually long and slender, longer than antennal joint 3, biarticulate, the apical joint broadened apically, shorter or much shorter than basal joint. *Scutellum* rather well developed, subtumid and shining posteriorly in ♂♂ especially. *Legs* with the femora in some ♂♂ (especially front ones) sometimes thicker and stouter than in ♀♀; front and middle femora, especially in some ♂♂, either with longish, fine, fairly dense hairs below or with only shortish ones, or sometimes even without distinct hairs below; middle femora without or more often with 2 or 3 strong spines on inner lower part; hind femora with a variable number of conspicuous, longish, bristle-like spines (text-

fig. 124) from near base or from about middle to apex below, those in ♂♂ usually more numerous and more strongly developed, the basal ones in some species being conspicuously long, bristle-like and usually more or less arranged irregularly in two rows or in pairs; tibiae with three rows of spicules on front and middle ones, the inner row wanting and those in outer lower row markedly long and bristle-like; hind tibiae with four rows of spicules of which those in outer row are usually the longest and bristle-like and those in inner upper row also with numerous short spicules; apical spurs strongly developed, the lower 2 or 3 markedly long and bristle-like; front tarsi in ♂♂ usually longer than in ♀♀, the basal joint in both sexes with much finer and denser spicules or hair-like spicules than on middle and hind tarsi, the spicules on tarsal joints 2-5 below sometimes in brush-like clumps in some ♂♂; claws slightly curved downwards apically, their pulvilli well developed, almost reaching bent-down apices of claws. *Abdomen* in ♀♀ with a conspicuous terminal, silky, ovipositorial tuft or brush. *Hypopygium* of known ♂♂ (text-figs. 125-8) with the sternite opposite it well developed, broad, its apical angles more or less rectangular, sometimes rounded, and its hind margin not incised, sometimes broadly emarginate; basal parts of hypopygium with a small triangular tergite dorsally between their bases, dorsal part in neck region almost without or with only very fine and short hairs, the dorsal apical part sometimes with a lobe-like process, the outer lower edge or margin of each basal part sometimes produced into a lobe-like or even triangular process; beaked apical joints laterally compressed, either elongate, almost blade-like, or bird-head-shaped from side, covered with shortish hairs, the apex usually curved downwards; a distinct, conspicuous, ventral aedeagal process or apparatus present and formed by the lateral ramus on each side from each basal part coalescing apically to form a projecting rod-like or beak-like process on which there is a transverse slit-like groove or incision through which or in which the apex of aedeagus opens (more evident in text-figs. 125 and 126); basal part of ramus on each side where it joins each basal part produced into a process or broad leaf-like extension; lateral struts comparatively broad, shoe-horn-shaped or scapula-like; basal strut sometimes with a flattened triangular extension on each side basally and sometimes with a lateral ledge-like extension on each side of dorsal part of the apical margin (cf. text-figs.).

From *Petrorossia* and *Aphoebantus* this genus may at once be distinguished by the presence of three submarginal cells in the wings, the strongly wrinkled wing-membrane, the rather large auriform squamae, the eyes in ♂♂ which are in contact for some distance in front of tubercle, the presence of more lanceolate scaling on body above, the conspicuous, longish and bristle-like spines and their disposition on hind femora in ♂♂, the long spicules on tibiae and their long spurs in both sexes and the different type of hypopygium. All these characters, excepting an apically acute and closed first posterior cell, also distinguish it from the subgenus *Cononedys* of *Aphoebantus*.

Representatives of this genus have not been recorded from outside the boundaries of Southern Africa. Like the species of the *Plesiocera*-group and

members of the *hesperus*-section of *Petrorossia*, representatives of this genus are usually found settling on warm sand in the dry and semi-arid parts where most of the South African forms occur. The genotype species is *Pteraulax flexicornis* Bezz.

Key to the known species of Pteraulax

1. (a) Spines and spicules on legs distinctly longer, more strongly developed and more conspicuous, the spines on hind femora very long, more bristle-like, especially in ♂♂; transverse rows of bristles across hind margins of tergites and sternites more strongly developed, stouter and longer, sometimes very conspicuous in ♀♀; scaling on abdomen above composed of dull ochreous yellowish or brownish ones and less conspicuous transverse bands of snow-white or cretaceous white ones; first posterior cell in wings usually distinctly longer or very much longer than discoidal cell; knobs of halteres brownish or dark above; slightly smaller forms, about 5-9½ mm. long, with a wing-length of about 4-8 mm. 2
- (b) Spines and spicules on legs less developed, relatively shorter, the spines on hind femora shorter, less bristle-like, more normal even in ♂♂; bristles on abdomen above and on venter distinctly less developed, finer, much shorter, more like bristly hairs than bristles, not very conspicuous in both sexes; scaling on abdomen above composed of dark or black ones and more conspicuous or broader, more contrasting bands of cretaceous white ones; first posterior cell subequal in length to, or scarcely longer, or even shorter than discoidal cell; knobs of halteres usually paler brownish or more yellowish above; slightly larger forms, about 9-11 mm. long, with a wing-length of about 8-9 mm. 6
2. (a) Palps shorter, subequal in length to antennal joint 3, the apical joint much shorter, only about or even less than half length of basal one; antennal joint 3 (text-fig. 123, left) with a distinctly longer slender part, its base distinctly more rapidly broadened, more onion- or bulb-shaped; front and middle femora with numerous, dense and distinctly longer hairs below, especially in ♂; spicules on front tarsi below fine or hair-like on all joints; bristly elements across hind margins of tergites and sternites, even in ♀, more feebly developed, relatively shorter, not very much stronger or stouter or more differentiated than rest of hairs on abdomen; frons in ♀ slightly more longitudinally impressed in front of ocellar tubercle. ♂ ♀ *flexicornis* Bezz. (p. 338)
- (b) Palps distinctly longer, more slender, usually much longer than antennal joint 3, the apical joint distinctly longer, distinctly more than half length of basal joint; antennal joint 3 more gradually broadened at base, more club- or leek-shaped, its slender part relatively shorter; front and middle femora either without any distinct hairs or with much shorter, finer, more brush-like hairs and only on front ones in ♂♂; spicules on front tarsi below hairy and fine only on joint 1, or normally developed to a variable extent on all joints; bristly elements across hind margins of tergites and sternites distinctly more strongly developed in both sexes, but more so in ♀♀, often stout and bristle-like, longer or very conspicuously differentiated from rest of hairs on abdomen; frons in ♀♀ distinctly more transversely depressed in front of tubercle. 3
3. (a) Anterior part of frons and the face distinctly narrower, considerably narrower across antennae than length of eyes from indentation to fore-border, less tumid in appearance; antennae closer together, space between them usually less than length of joint 1; proboscis distinctly longer, more slender, projecting slightly beyond buccal cavity, shiny and horny, with much shorter labellar lobes; enclosed submarginal cell in wings shorter, broader, more broadened apically; anterior apical submarginal cell distinctly shorter, its basal angle, even in ♀, distinctly less acute; alula much narrower and axillary lobe also narrower; bristly elements on abdomen very strongly developed, much longer and stouter; tuft on each side at base of abdomen white; scaling on abdomen above broadly white on sides, dull ochreous yellowish to brownish yellowish discally above, but usually also with a sublateral broken band of dark scales especially in ♂ and a paler, more whitish or yellowish central line, especially in ♀; front femora in ♂ thicker than in ♀, with markedly fine and dense, brush-like hairs below in ♂; hind

femora in ♂ with longer bristle-like spines basally in irregular pairs; basal joint of front tarsi with only very fine, dense, hair-like spicules or hairs below and, especially in ♂, with brush-like clumps of dark spicules on joints 2-5 below.

. ♂ ♀ *setaria* n. sp. (p. 340)

- (b) Anterior part of frons and the face very much broader, only a little or scarcely narrower across antennae than length of eye at level of indentation, distinctly more tumid or convex; antennae farther apart, space between them distinctly more than length of joint 1; proboscis shorter, stumpy, not projecting beyond face, with longer labellar lobes, scarcely shorter than base; enclosed submarginal cell longer, distinctly narrower, more parallel-sided; anterior apical submarginal cell distinctly longer, distinctly more sharply acute basally even in known ♂♂; alula distinctly broader and axillary lobe also relatively broader; bristles on abdomen less developed, shorter; tuft at base of abdomen tinted more yellowish or creamy; scaling on abdomen above also yellowish ochreous or even deeper ochreous yellowish, but with the white and dark ones not so arranged; front femora in known ♂♂ more slender, not thicker than in ♀♀, the fine hairs below not so brush-like; hind femora in known ♂♂ with the spines near base more normal, not markedly long and so irregularly paired; basal joint of front tarsi with dense, but distinct spicules below and with dark spicules on rest of joints not so brush-like in ♂♂.

. 4

4. (a) Interocular space on vertex in ♀♀ narrower, usually less or much less than or scarcely 3 times width of ocellar tubercle; frons in ♀♀ relatively narrower and, just behind antennae, usually distinctly less than length of eye at level of indentation; abdomen above without any or with less extensive black scaling and with finer, paler yellowish or more extensive white scales, the latter arranged across hind margins of tergites or across basal parts of most of the tergites; disc of thorax with fewer black hairs or with not entirely black hairs.

. 5

- (b) Interocular space on vertex in ♀ relatively very broad, distinctly 3 or a little more times width of tubercle; frons in ♀ also remarkably broad, even slightly broader just behind antennae than length of eye at level of indentation; abdomen above with much or more extensive dark scaling, with broader deeper ochreous or orange yellowish scales and less extensive white ones which are arranged transversely across base (laterally) of tergite 2 and sides of some other tergites, especially posteriorly; disc of thorax above with black hairs.

. ♀ *eurymetopa* n. sp. (p. 345)

5. (a) Space on vertex in ♀ slightly broader, more than half width of frons anteriorly; abdomen in both sexes more broadly and more conspicuously reddish on sides below; hind margins of sternites broader reddish; scaling on abdomen above more uniformly dull ochreous yellowish, white ones being more or less only present broadly across base of tergite 2 and sides basally of the others; bristles across hind margins of tergites discally or medially sometimes dark. (♂ also with black or dark hairs on frons as in ♀; the eyes in actual contact above for about twice length of ocellar tubercle and facets in upper part rather coarse.)

. ♂ ♀ *latifacies* n. sp. (p. 343)

- (b) Space on vertex in ♀ relatively much narrower, a little less than half width of frons anteriorly, the sides of frons more divergent anteriorly; abdomen more narrowly reddish along extreme sides below; hind margins of sternites more narrowly reddish; scaling on abdomen above on the whole with more extensive whitish ones, more white ones across hind margins of tergites; bristly hairs across hind margins of tergites with apparently more pale ones.

. ♀ *ausana* n. sp. (p. 344)

6. (a) Hind tibiae distinctly slightly thicker, dark or black and black-scaled and the other tibiae often with dark surfaces; extreme sides of abdomen and hind margins of sternites more narrowly pallid or reddish; antennae closer together, the space between them less than or about length of joint 1 which itself is slightly longer; abdomen with the transverse bristly hairs more developed and longer and the transverse bands of white scaling on the whole narrower and, if broadish, usually without discal white patches; prealar, postalar and scutellar bristles darker, more reddish or reddish golden; hairs on disc of thorax usually very dark or black; veins in wings dark, blackish brown to black; knobs of halteres more often darkened above or brownish.

. ♂ ♀ *eremophila* n. sp. (p. 346)

- (b) Hind tibiae thinner, entirely pale or yellowish and pale or whitish-scaled and all the other tibiae entirely yellowish; extreme sides of abdomen and hind margins of sternites distinctly more broadly yellowish, reddish or pallid; antennae more separated, the space between them a little broader than length of joint 1 which itself is relatively shorter; abdomen with the transverse bands of white scaling more constantly broader and usually also with white discal patches in ♀ at least and with the transverse bristly hairs, especially posteriorly, shorter and less developed; prealar, postalar and scutellar bristles paler yellowish or pallid; hairs on disc of thorax tinted reddish brownish in ♀ at least; veins in wings pale or yellowish; knobs of halteres yellowish or pallid.

. ♂ ♀ *cinctalis* n. sp. (p. 348)

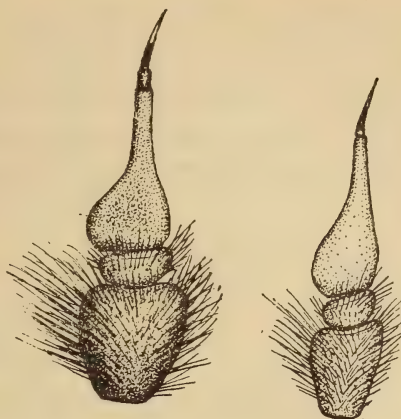
Pteraulax flexicornis Bezz.

(Bezzi, p. 118 and pl. ii, fig. 20, *Ann. S. Afr. Mus.*, xviii, 1921.)

The characters of this species, on which Bezzi based his generic description, are as follows:

Body predominantly black, the black parts, especially sides of head and thorax, however, appearing dull greyish due to fine greyish pruinescence; dorsal part of thorax usually with three longitudinal lines of more conspicuous greyish white pruinescence; buccal cavity and palps yellowish; extreme sides of tergites below, hind margins of sternites, extreme apices of femora, entire tibiae and greater part or entire tarsi yellowish or yellowish reddish; labellar part of proboscis and trochanters sometimes infused with brownish or reddish brownish. *Vestiture* on frons, antennae above and below and on face in ♂ gleaming entirely or predominantly sericeous whitish, usually with no dark hairs or only a few present on frons; that on frons in ♀ predominantly dark brownish to blackish brown and that on antennae above sometimes feebly tinted pale yellowish brownish; that on face in ♀ like that of ♂; that on pleurae, coxae, mesopleuron and to a large extent on humeral part gleaming predominantly sericeous whitish in both sexes; that across front part of thorax in some ♂♂ also whitish; that discally on thorax in ♂ tinted slightly yellowish to brownish, appearing darker, usually darker brownish or reddish brownish in ♀; that across collar-region in ♀ also darker than in ♂; prealar, postalar and scutellar bristles well developed, yellowish to reddish yellowish or even reddish brownish to a variable extent; some bristly hairs across base of thorax and hind border of scutellum even darker or blackish in some specimens, especially ♀♀; dense hair on sides of tergite 1 sericeous whitish; that on rest of abdomen predominantly sericeous whitish in ♂, but tinted slightly more yellowish in ♀; the more bristly elements across hind margins not conspicuously stoutish, usually predominantly whitish in ♂, more yellowish in some ♂♂, usually sericeous yellowish to dark brownish in ♀; those across last or last two tergites and last sternite usually dark in most ♂♂; hairs on femora sericeous whitish; scaling on sides of head, thorax and scutellum predominantly cretaceous whitish, denser on sides of thorax and along three discal lines; that on abdomen predominantly ochreous yellowish or reddish brownish; that on sides and as narrow bands across hind margins of tergites cretaceous whitish; that on venter also cretaceous whitish; that on legs dense, predominantly cretaceous whitish, sometimes slightly tinted yellowish on

upper apical parts of femora. *Wings* (text-fig. 122) with the veins dark brownish to blackish brown, usually becoming more brownish at base; first posterior cell distinctly very much longer than discoidal cell; middle cross vein distinctly or much before middle of discoidal cell; squamae (text-fig. 122, below) with fairly dense scale-like hairs or scales on surface; halteres brownish, their knobs brownish above. *Head* with the space between eyes across level of antennae very much narrower than length of eye from indentation to anterior margin; interocular space on vertex in ♀ varying from about 2, to a little more, times distance between outer margins of posterior ocelli; frons distinctly longitudinally depressed in front of tubercle in ♀; antennal joint 3 (text-fig. 123, left) broadened bulb-like or onion-like at base, slightly more so below; proboscis short, stumpy, confined to buccal cavity, its labella well developed, usually a little longer than basal part of proboscis and with conspicuous spinules; palps subequal in length to antennal joint 3, the basal joint about or nearly 2 times as long as apical joint. *Legs* with distinct long, fine and relatively dense hairs on front and middle femora below, especially in ♂; front femora in ♂ not more developed than in ♀; middle femora



TEXT-FIG. 123. Left antenna of ♂ *Pteraulax flexicornis* Bezz., and (on right) left antenna of ♂ *Pteraulax setaria* n. sp.



TEXT-FIG. 124. Left hind leg of ♂ *Pteraulax flexicornis* Bezz.

broad, shoe-horn-shaped; basal strut large, sub-racket-shaped, with a triangular lateral extension on each side basally and with no apparent extension on each side of apical margin.

usually without any spines below, but sometimes with a few spines in some ♀♀; hind femora (text-fig. 124) with about 10–12 spines from base to apex below in ♂ of which the basal 5 or 6 are markedly long and irregularly disposed, with about 6 or 7 shorter spines in ♀; front tarsi with spicules below fine, short and hair-like on all the joints. *Hypopygium* of ♂ (text-fig. 125) with the beaked apical joints rather elongate, narrowish, much flattened from side to side, blade-like; apical part of ventral aedeagal process rod-like, its apex curved downwards; apex of aedeagus ending in a slit in ventral process; lateral struts

Types and other specimens in the South African Museum.

Length of body: about $6-9\frac{1}{2}$ mm.

Length of wing: about $5\frac{1}{2}-8$ mm.

Locality: Bushmanland and Namaqualand.

Like *Petrorossia hesperus* subsp. *tropicalis*, representatives of this species are usually also found settling on the warm sand between shrubs. It appears to occur only in the dry and semi-arid parts of the North-western Cape.



TEXT-FIG. 125. Side view of hypopygium and dorsal view of beaked apical joint of ♂ *Pteraulax flexicornis* Bezz.

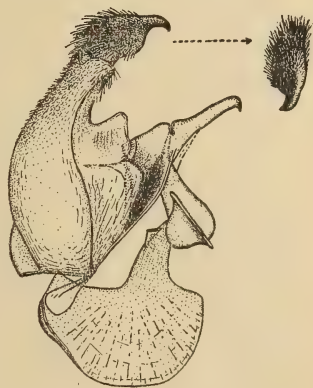
Pteraulax setaria n. sp.

This species, which appears to be fairly common in the Western Cape in the Olifants River Valley and Namaqualand is characterized as follows:

Body mainly black; antennal joints 3 and proboscis often tending to be more castaneous brownish; small ring around place of attachment of antennae, posterior half of buccal cavity and its posterior rim and the palps very pale yellowish or pallid; anterior spiracular openings, hind margin of metapleural part, extreme sides of tergites (more broadly in ♂), hind margins of sternites and to a variable extent last sternite in ♂ yellowish or reddish to a variable extent; coxae or their apices to a variable extent, trochanters, sometimes bases of femora, sometimes lower surfaces of or even greater part of front and middle femora, or only the middle femora, the knees, tibiae and basal parts of tarsi also yellowish.

Vestiture with the greater part of head in front, thorax above and pleurae covered with a greyish whitish pruinescence which on disc of thorax is more conspicuous as two bluish whitish sublateral streaks and a fainter, more whitish, central one; hairs on frons black or dark in ♀, sericeous whitish in ♂, but occasionally with a few or some dark ones in the middle; those on sides anteriorly of frons in ♀ and on face in both sexes gleaming sericeous whitish to pale sericeous yellowish in some ♀♀ especially; hairs on occiput dark in ♀, pale or whitish in ♂, scaling on frons dull ochreous yellowish in ♀, more greyish yellowish to whitish in ♂; scaling on sides of frons anteriorly in ♀, sparsely on face in both sexes and rest of scaling behind eyes and on head below in both sexes white; hairs in collar anteriorly, on humeral tubercle, mesopleural and propleural tufts, bristly ones on coxae, tuft on sides at base of abdomen, hairs and bristles on sides of abdomen above, especially in ♂, and bristly hairs on venter in both sexes sericeous whitish, those on venter sometimes gleaming slightly more sericeous yellowish; fine hairs on disc of thorax, the bristly ones across base of thorax, the bristly ones in front of prealar bristles in ♀, hairs on hinder part of collar in ♀, bristly hairs on hinder part of scutellum in ♀ (wanting in ♂), transverse rows of strongly developed, conspicuous and stoutish bristles across hind margins of tergites on each side of middle in ♀ (longest and stoutest

on tergites 2-4 towards middle), a few in a row on each side of middle in ♂ and some across last tergite in ♂ and often posteriorly on venter in ♂ dark or black; most of the corresponding, long, transversely arranged bristles on abdomen above in ♂ being, however, whitish or pallid; prealar, postalar and scutellar bristles yellowish, reddish or reddish golden in both sexes; fine scaling on thorax above greyish yellowish to ochreous yellowish in ♂ with that on sides and in streaks on pale streaks whitish, more extensively ochreous yellowish to brownish in ♀; that on scutellum white in ♂, more greyish yellowish to dull ochreous in ♀; scaling on pleurae and coxae cretaceous white, very dense and conspicuous on sternopleuron and in a small patch above hind coxae; scaling on abdomen above composed of yellowish or dull ochreous to brownish ochreous ones, white or whitish ones and dark or black ones, the dense white ones arranged broadly on sides of abdomen, to a variable extent along midline where it is sometimes replaced by pale yellowish or pale buff-coloured ones and to a lesser extent across hind margins of tergites, the dark or blackish ones usually in a sublateral streak on each side, separating the lateral from the central pale bands in ♂ especially, but absent or ill-defined in ♀ where ochreous or brownish ones seem to be more extensive; scaling on venter dense, cretaceous white; that on legs also dense and mainly cretaceous white, that on anterior apical parts of front and middle femora and in a conspicuous patch on upper apical and upper lateral parts of hind femora dark brownish, blackish brown to black; spines and spicules on legs very pale yellowish, pallid to almost whitish; terminal tuft of ♀ fulvous yellowish, dark above. *Wings* vitreous hyaline, iridescent, the base, costal cell and at least basal half of first basal cell more opaquely whitish; veins dark; enclosed submarginal cell distinctly shorter and slightly more broadened in ♂ than in ♀; anterior apical submarginal cell also slightly shorter and broader and much less acute basally in ♂ than in ♀; first posterior cell longer than discoidal cell; middle cross vein a little before to a little beyond middle of discoidal cell; axillary lobe rather narrowish; alula narrow; squamae whitish, with fine whitish hairs; apical part and knobs of halteres dark brown above. *Head* with the eyes in ♂ in contact above in front of ocellar tubercle for a distance about twice length of tubercle; interocular space on vertex in ♀ a little more than 2 times distance between outer margins of posterior ocelli; frons in ♀ transversely depressed a little before ocellar tubercle; antennae (text-fig. 123, right) with joint 2 transverse, broader than long, joint 3 broadened club-like to bulb-like basally, more rapidly below, flattened on inner side basally, its slender part slightly longer in ♂ than in ♀, its terminal joint a little longer than antennal joint 2; proboscis shiny, horny, projecting a little



TEXT-FIG. 126. Side view of hypopygium and oblique dorsal view of beaked apical joint of ♂ *Pteraulax setaria* n. sp.

beyond apex of buccal cavity, its labellar lobes distinctly shorter or much shorter than basal part; palps distinctly longer than antennal joint 3, the apical joint slender, more than half as long as basal joint. *Scutellum* in ♂ distinctly more subtumid than in ♀ and also more smooth and shining in hinder half. *Legs* with the femora in ♂, especially front ones, markedly stouter than in ♀; front ones in ♂ with a streak of fine, dense, brush-like hairs along the lower surface, without any such specialized hairs in ♀ and also without any on middle femora in ♂; middle femora with 1 or 2 spines, more often only 1, on anterior or outer apical half; hind ones in ♂ with about 7-15 spines in a double row below of which those basally are remarkably long and bristle-like; hind ones in ♀ with fewer spines, only about 3-5 in a single row; long spinules in outer row on front and middle tibiae conspicuous and remarkably long in both sexes; front tarsi longer in ♂ than in ♀, joint 1 in both sexes without stoutish spinules below, but with only fine, dense, hair-like ones, joints 2-5 below with the spinules dense and concentrated in brush-like clumps in ♂, less so and more normal in ♀. *Hypopygium* of ♂ (text-fig. 126) differs from that of *flexicornis* in having the outer ventral edge of each basal part produced more lobe-like; beaked apical joints entirely different in shape, bird-head-shaped in profile; apical part of aedeagus sometimes distinctly projecting through transverse slit in ventral aedeagal process; basal strut more chopper-shaped.

From 84 ♂♂ and 81 ♀♀ (types and paratypes in the South African Museum and paratypes in the British and Transvaal Museums).

Length of body: about 5-8½ mm.

Length of wing: about 4-7 mm.

Locality: Western Cape: Bulhoek in the Olifants River Valley between Clanwilliam and Klawer (Mus. Exp., Oct. 1950) (types); upper sources of Olifants River in Ceres Division (Mus. Exp., Dec. 1949); Citrusdal Dist. (Mus. Exp., Nov. 1948); Olifants River between Citrusdal and Clanwilliam (Mus. Exp., Oct.-Nov., 1931); Matroosberg (3,500 ft. alt.) in Ceres Div. (Lightfoot, Jan. 1917); Michell's Pass (Simmonds, 1-5 Dec. 1930); Kamieskroon in Namaqualand (Mus. Exp., Nov. 1936). South-West Africa: Klipfontein in Great Namaqualand (van Son, 16 Nov. 1933).

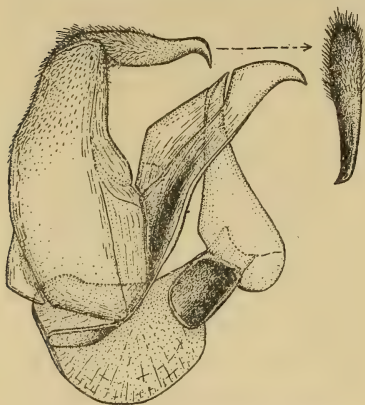
Easily recognized by the stoutish and conspicuous bristles across hind margins of the tergites and to a certain extent also the sternites, especially in ♀♀, by the slender proboscis, extensive ochreous scaling on abdomen above, the strongly developed spines and spicules on legs, etc. From *flexicornis* which it superficially resembles it may however at once be distinguished by the longer palps which are longer than antennal joint 3 and which have a longer apical joint; by the longer and not stumpy proboscis; the much shorter and finer hairs on front femora below; stouter front femora in ♂; absence of longish hairs on middle femora below; presence of clumps of brush-like spicules on joints 2-5 of front tarsi below; less onion-shaped base of antennal joint 3; shorter and more feebly developed bristles on abdomen, etc.

The species appears to be slightly variable in the extent to which the yellowish on front and middle femora is developed, the extent to which the ochreous scaling on abdomen is replaced along the middle by paler ochreous yellowish or whitish ones and sublaterally in ♂♂ at least by dark scaling. Specimens from higher altitudes near the source of the Olifants River or in the mountains near Ceres appear darker and have the front and middle femora almost or entirely dark. Farther northwards along the Olifants River, in its valley and towards Namaqualand the reddish on the front and middle femora becomes more extensive and the pale central line on abdomen above even paler or more whitish.

Pteraulax latifacies n. sp.

Body with the abdomen in ♂ more conical and less cylindrical than in the two preceding species, predominantly black; buccal cavity and palps yellowish; sides of abdomen above and hind margins of sternites fairly broadly reddish yellowish; legs with the trochanters, extreme bases and apical parts of femora, the tibiae and basal parts of tarsi yellowish reddish, the upper surfaces of hind tibiae and apical parts of tarsi darkened. *Vestiture* on frons and antennae above predominantly black in both sexes, that on antennae below and face sericeous whitish; that on pleurae, coxae and mesopleuron sericeous whitish; that on thorax above anteriorly and antero-laterally straw-coloured or tinted slightly yellowish in certain lights; short hair discally slightly darker, more brownish, even blackish in some ♀♀; prealar, postalar and scutellar bristles yellowish to reddish, some dark or even blackish bristly hairs present across base of thorax and hind border of scutellum; hair on sides of tergite 1 sericeous whitish to slightly yellowish in certain lights, sometimes with some intermixed dark hairs across hind margin in some ♀♀; hair on rest of abdomen predominantly whitish, especially in ♂, the stouter bristly elements across hind margins tinted slightly sericeous yellowish in ♂, usually darker in ♀ and sometimes even blackish, these bristles shorter than in *setaria*; scaling on sides of frons anteriorly, on face and sides of head cretaceous whitish; that on rest of frons in ♀ at least more ochreous yellowish; that on thorax antero-laterally and on scutellum dull ochreous yellowish to brownish; that on abdomen above discally predominantly ochreous yellowish, that transversely across hind margin of tergite 1 and base of 2 and on sides of abdomen cretaceous whitish like that on pleurae and venter; that on the latter two contrastingly more whitish; that on legs also whitish. *Wings* with the veins dark brownish to blackish brown; enclosed submarginal cell narrow throughout; first posterior cell longer than discoidal cell; middle cross vein either just before or just beyond middle of the latter cell; halteres yellowish brownish, their knobs brownish above or with a brownish spot. *Head* with the space between eyes at level of antennae markedly broad, about as broad as, or only slightly less than, length of eye at level of indentation; space on vertex in ♀ a little more than 2, nearly 3, times distance between outer margins of posterior ocelli; frons transversely depressed in front of tubercle in ♀; antennal joint 3

club-shaped; proboscis stoutish, stumpy, almost confined to buccal cavity, its labella well developed, scarcely or only a little shorter than basal part; palps slender, a little longer than antennal joint 3, the apical joint long. *Legs* with the femora in ♂ not thicker than in ♀, with only fine shortish hairs on front femora below in ♂; middle femora with 1 or 2 spines below; hind ones with about 5–7 spines in ♂, and 4 or 5 in ♀, below, the basal ones in ♂ not clustered together; spicules on basal joint of front tarsi below, though dense and fine, not hair-like



TEXT-FIG. 127. Side view of hypopygium and oblique dorsal view of beaked apical joint of ♂ *Pteraulax latifacies* n. sp.

and the darkish ones on joints 2–5 not brush-like in clumps. *Hypopygium* of ♂ (text-fig. 127) superficially resembles that of *flexicornis* (cf. text-fig. 125), but the beaked apical joints are relatively longer, their apical parts more rapidly curved downwards; ventral aedeagal process more beak-like apically; apex of aedeagus more visible in slit of ventral process; lateral struts more flattened; basal strut with a triangular extension on each side basally.

From 1 ♂ and 6 ♀♀ (types in the South African Museum, a paratype one each in the British Museum and National Museum of Southern Rhodesia).

Length of body: about 6–9 mm.

Length of wing: about 6–8 mm.

Locality: South-western Cape: Hex River (Dec. 1884) (holotype); Genaden-dal (Mus. Exp., Jan. 1937) (allotype); Malmesbury (Nat. Mus. S. Rhodesia, 27 Jan. 1947); Ceres (Turner, Jan. 1921). Karoo: Murraysburg (Mus. Exp., Nov. 1936). Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936).

Differs from *setaria* in having a distinctly broader facial part across antennae, a more stumpy proboscis, shorter and less conspicuous bristles across tergites, more uniform ochreous yellowish scaling on abdomen above and slightly coarser hairs or fine spicules on basal joint of front tarsi. From *flexicornis* it differs in having a broader facial part, more club-like antennae, longer palps, no long hairs on front femora, etc.

Pteraulax ausana n. sp.

Superficially resembles ♀♀ of the preceding species. From *flexicornis* it differs in being considerably smaller, in having less bulb-shaped third antennal joints, more slender and slightly longer palps, very much narrower yellowish on sides of abdomen, narrower enclosed submarginal cell, shorter hairs on front and middle femora below, and only about 3 spines on hind femora below. From *setaria* it may at once be distinguished by the relatively stouter and more stumpy proboscis, relatively narrower interocular space on vertex which is only about 2 times width of ocellar tubercle, by the presence of more white scaling trans-

versely across hind margins of tergites, absence of longish and stoutish transverse bristles on abdomen, much narrower yellowish on sides of abdomen, etc. From *latifacies* it differs in having a much narrower interocular space, narrower facial part, more whitish scaling transversely on abdomen above, etc.

From a ♀ in the British Museum.

Length of body: about $5\frac{1}{2}$ mm.

Length of wing: about 5 mm.

Locality: South-West Africa: Aus in Great Namaqualand (Turner, Dec. 1929).

Pteraulax eurymetopa n. sp.

Denuded ♀-specimens are the only representatives of this species in the collections before me. Their chief characters are:

Body predominantly black; buccal cavity, palps, hind margin of metapleural plate, broadish sides of abdomen, broadish hind margins of sternites, trochanters, apices of femora, especially front and middle ones, tibiae, and basal parts of tarsi yellowish reddish; hind tibiae darkened above and the hind tarsi entirely dark. *Vestiture* on vertex, frons and antennae above black; that on face sericeous whitish; that on pleurae, coxae and mesopleuron sericeous whitish; fine hair discally on thorax dark and longer ones antero-laterally tinted yellowish to reddish brownish; longest prealar, postalar and scutellar bristles reddish; some prealar bristly elements, some bristles across base of thorax and across scutellum dark; hair on sides of tergite 1 whitish; that on rest of abdomen also whitish, the shortish transverse bristles sericeous yellowish, but with black ones across hind margin of tergite 1 and discally on tergites 3-7; hair on venter sericeous whitish; scaling above dull yellowish to ochreous, whitish on sides of abdomen and ochreous yellowish across hind margins or hinder halves of tergites, with much dark or black scaling discally above; that on pleurae, venter and legs whitish. *Wings* slightly greyish hyaline, the veins blackish brown; enclosed submarginal cell narrow throughout; first posterior cell much longer than discoidal cell, its apical stalk rather short; end of second vein not bent upwards very much; halteres dirty yellowish, their knobs brownish above. *Head* with the frons rather broad, space on vertex about 3.4-3.5 times distance between outer margins of posterior ocelli; space across antennae slightly broader than length of eyes at level of indentation; frons only slightly diverging anteriorly, transversely depressed in front of tubercle; antennal joint 3 broadened bulb-like or club-like basally; proboscis short, stumpy, its labella well developed, scarcely shorter than rest; palps relatively short, not so slender as in three preceding species, longer than in *flexicornis*, the apical joint also longer than in the latter. *Legs* with some longish hairs on lower outer parts of front and middle femora; middle ones with 2 or 3 spines below; hind ones with a row of 6 spines below.

From 2 ♀♀ in the South African Museum.

Length of body: about 9 mm.

Length of wing: about $8-8\frac{1}{2}$ mm.

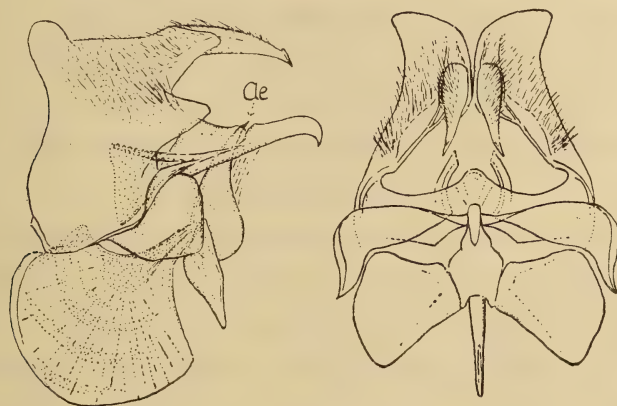
Locality: North Namaqualand: Lekkersing in the Richtersveld (Mus. Exp., March 1935).

Pteraulax eremophila n. sp.

This and the following species are characterized by certain characters which seem to relegate them to a sort of special section of *Pteraulax*. Superficially the ♀♀ have some distant resemblance to *Peringueyimyia* and they are also relatively larger and bulkier than ♀♀ of other species of *Pteraulax*.

Body mainly black, only the palps, extreme sides below of tergites and hind margins of sternites pallid, the latter even tending to be whitish; legs black, but the knees and hinder or outer surfaces of, or sometimes even entire, front and middle tibiae and more or less basal parts of front and middle tarsi yellowish. *Vestiture* with the hair on frons and face entirely white in ♂, black on frons in ♀ except on sides anteriorly to a variable extent; hairs on ocellar tubercle and on sides above apically on antennal joints 1 and 2 black in both sexes; fine hairs on disc of thorax above, more often those in front of prealar bristles, slightly larger ones across base of thorax and on disc of scutellum, a few scattered ones across middle of hind margins of last three tergites, especially in ♀, and across last sternite in ♂ black; hair in collar above, in mesopleural and propleural tufts, on pleurae, coxae, dense tuft on sides of tergite 1 and rest of hairs on sides of abdomen and on venter white; prealar, postalar and scutellar bristles yellowish to reddish golden, a few on scutellum sometimes darker; spines and spicules on legs also yellowish to yellowish red; posterior brush of ♀ fulvous, more fulvous brownish above; scaling behind eyes cretaceous white; that on thorax and scutellum above gleaming whitish or silvery, denser on sides; that on pleurae and very dense on sternopleuron and coxae contrastingly snow-white; scaling on abdomen above composed of shiny black and snow-white ones, the latter arranged as relatively narrowish (sometimes broadish) contrasting, transverse bands across hind margins of tergites 1-7 in ♂ and 1-6 in ♀ and also on sides of inflexed tergites below; scaling on venter dense and snow-white; scaling on legs also very dense and white, black or blackish brown apically on hind femora, on inner or anterior surfaces of front and middle femora, on hind tibiae and more often also on anterior surfaces of front and middle ones. *Wings* vitreous hyaline; base, costal cell and basal half of first basal cell more subopaquely whitish; veins dark or blackish brown; enclosed submarginal cell narrow, almost parallel-sided; base of apical submarginal cell acute; first posterior cell subequal in length to discoidal cell, sometimes shorter; the latter cell slightly broadened before its apex; middle cross vein a little beyond middle of discoidal cell; squamae yellowish whitish, their fine hairy fringe whitish; halteres yellowish brownish above, their knobs yellowish to brownish above. *Head* with the eyes in ♂ in contact above for a distance a little less than twice length of tubercle (including little space just before front ocellus); interocular space on vertex in ♀ a little less than or about 3 times distance between outer margins of posterior ocelli; frons in ♀ more or less shiny in basal half, trans-

versely depressed in front of tubercle; antennal joint 3 broadened bulb-like basally, the slender part rather stoutish; proboscis short, stumpy, more or less confined to buccal cavity, its labellar lobes longer than basal part, conspicuously spinuliferous; palps longer than antennal joint 3, their basal joint much longer than apical joint, but much less than twice as long. *Legs* with the femora in ♂ not thicker than in ♀, with only fine hairs along outer lower parts of front and middle femora apparent in ♂; spines on femora, though well developed, not



TEXT-FIG. 128. Side and ventral views of hypopygium of ♂ *Pteraulax eremophila* n. sp., showing the aedeagal apparatus in outline (ae = slightly projecting and spine-like aedeagus proper).

conspicuously or markedly long and bristle-like as in the *flexicornis* and *setaria*-section; middle femora with about 2-4 spines on anterior or outer part; hind ones with about 4-14 spines below, of which those basally are arranged more or less in two rows especially in ♂, and of which 3-5 are on inner side. *Hypopygium* of ♂ (text-fig. 128) enlarged, rather complicated; basal parts produced apically above into a prominent, slightly outwardly directed lobe and along its ventral margin into a conspicuous triangular process; beaked apical joints elongate, narrow and somewhat laterally compressed (more so than is shown in figures which have been drawn from a specimen in liquid); aedeagal apparatus with an elongate beak-like aedeagal process attached to a very broad ramus on each side from basal part; aedeagus itself (ae) scarcely evident, spine-like; lateral struts very broad and shaped as in right-hand figure; other structures connected to aedeagal apparatus shown in outline in two figures. *Last sternite* of ♂ elongate, broad, its hind margin emarginate and its apical angles rounded.

From 5 ♂♂ and 6 ♀♀ in the South African Museum.

Length of body: about 9-11 mm.

Length of wing: about 8-9 mm.

Locality: Koups Karoo: Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952) (types); Merweville Dist. (Zinn, Jan.-Feb., 1947); Laingsburg Dist.

(Mus. Exp., Feb. 1935). South-West Africa: Rehoboth (Bell-Marley, Nov. 1937-Jan. 1938).

This species is chiefly characterized by the conspicuous transverse bands of white scaling across hind margins of abdomen and its relatively large size. It appears to be rather variable in the colour of the fine hairs on the thorax and in the extent of the white bands across abdomen. The ♀-paratype from Merweville Dist. differs from the ♀-allotype in having more extensive whitish hairs on frons anteriorly paler, more yellowish hairs on disc and sides of thorax, broader transverse bands of white scaling across hind margins of tergites, yellowish knobs to halteres and a first posterior cell which is distinctly much shorter than discoidal cell. The ♀ from Rehoboth in South-West Africa also shows slight differences; its front and middle tibiae being entirely yellow, the hairs on front part of frons more extensively whitish and the halteres also yellow-knobbed.

Pteraulax cinctalis n. sp.

Three specimens from Southern Rhodesia in the collections before me resemble *eremophila* so closely that they may almost be considered as only representing a northern form of the latter. Certain slight but distinct and constant differences however suggest a separate specific rank. From *eremophila* they differ in the following respects: Extreme sides of tergites more distinctly or more broadly reddish; hind margins of sternites more broadly pallid or yellowish; all the tibiae, especially hind ones, entirely yellowish, the latter apparently thinner and yellowish or white-scaled, not black-scaled as in *eremophila*; hairs on disc of thorax tinted reddish brownish in ♀, without any darkish ones in front of prealar bristles or across base; prealar, postalar and scutellar bristles more pallid or paler yellowish; transverse bands of white scaling on abdomen tending to be even broader than in some forms of *eremophila*, and also tending to form a central row of discal patches posteriorly; bristly hairs across hind margins of tergites, especially posteriorly, less developed, shorter; veins in wings paler, more yellowish; knobs of halteres yellowish; antennae distinctly more widely separated, the space a little broader than length of antennal joint 1 and the latter relatively shorter than in *eremophila*.

From 1 ♂ and 2 ♀♀ (types in the Commonwealth Institute and a paratype in the South African Museum).

Length of body: about 9-10 mm.

Length of wing: about 8 mm.

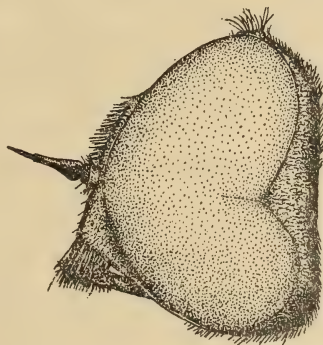
Locality: Southern Rhodesia: Bulawayo (Rhod. Mus., 1 Oct. 1922) (types); Bulawayo (Stevenson, 19 Oct. 1924).

Gen. *Pteraulacodes* n. gen.

This genus is very near *Pteraulax* with which it agrees and from which it differs in the following respects:

Body similarly shaped; abdomen in ♂♂ also cylindrical and in ♀♀ conically pointed, also predominantly black, but with the sides of abdomen, hind margins

of sternites, the femora and the tibiae yellowish or yellowish reddish to a variable extent. *Vestiture* with the erect hairs on body less developed, relatively sparser and shorter; hair on frons distinctly shorter and sparser; that on face for the greater part wanting, present only as a conspicuous brush-like tuft anteriorly and overhanging apex of buccal cavity; that on disc of thorax very much shorter, finer and sparser; vestiture on mesopleuron also sparser and shorter, composed of scales and bristly hairs, greater part of pleurae even barer than in *Pteraulax*; metanotal tuft also wanting; prealar, postalar and scutellar bristles however similarly developed, but apparently fewer in number; hair on abdomen, excepting only dense brush on sides of tergite 1, also sparse; transversely arranged bristly hairs across hind margins of tergites short, not developed to the same extent as in *Pteraulax*, conspicuous and longish only on last tergite in ♂♂; scaling slightly more developed and denser than in *Pteraulax*, very dense on frons and face, mostly lanceolate in shape, finer on body above; that on pleurae, mesopleuron, sternopleuron, hind margin of metapleural part and on coxae dense and cretaceous whitish; that on venter also very dense and that on legs as in *Pteraulax*. *Wings* with the membrane also wrinkled; basal comb wanting; three submarginal cells present; first posterior cell however open apically, not acute and closed as in *Pteraulax*; squamae much smaller, more normal. *Head* (text-fig. 129) large, subglobular, broader than thorax; eyes large, indented in hind margin and also with a short bisecting line extending from indentation, also in contact for some distance in front of ocellar tubercle in ♂♂, separated on vertex in ♀♀; occiput like that of *Pteraulax*, the medial sulcus tending to be narrower; frons also convex in ♂♂ and anteriorly in ♀♀; face from side however distinctly subconically prominent or snout-like, not gradually sloping into buccal cavity as in *Pteraulax*, but overhanging the buccal cavity, the brush-like tuft of hair emphasizing this character; buccal cavity deep; genae very narrow and linear, the genal furrows not so distinct as in *Pteraulax*; antennae with joint 1 relatively much shorter, cup-like and with much fewer and sparser hairs; joint 3 conical, gradually broadened basally, ending apically in a slender joint-like terminal joint bearing a relatively long style; proboscis confined to buccal cavity or only projecting slightly beyond buccal cavity; palps slender, longish, biarticulate, the apical joint clavate and very much shorter than basal joint. *Legs* without any dense fine or longish hairs on front and middle femora below; middle and hind femora also with slender bristle-like spines below as in *Pteraulax*, those near base on hind femora also long and slender and more or less disposed irregularly in pairs, in ♂♂ especially;



TEXT-FIG. 129. Head of ♂
Pteraulacodes karooënsis n.
gen. and n. sp.

tibiae also with the spicules on outer part long and bristle-like, and with the 2 or 3 lower spurs on middle and hind ones also markedly long and slender; claws with their apices bent downwards and the pulvilli well developed. *Genital brush* in ♀♀ also terminal. Apical angles of last sternite in ♂♂ slightly produced, more lobe-like and not rectangular as in *Pteraulax*. *Hypopygium* of ♂ (text-fig. 130) very much like that of *Pteraulax*; dorsal parts of basal parts also finely and relatively poorly covered with hair; beaked apical joints compressed, curved and elongate; a ventral aedeagal process in the form of a rod-like process also present; apex of aedeagus also ending in a transverse slit-like aperture in aedeagal process; lateral struts broadish, shoe-horn-shaped; basal strut with a triangular lateral extension on each side basally and with its apical margin along dorsal aspect also with a lateral ledge-like extension.

Superficially this genus also resembles *Plesiocera* and more especially *Stomyomyia*, from both of which it may readily be distinguished by the absence of a well-marked-off facial cone, the bisected hind margins of eyes, the longish and slender terminal element and style of antennal joint 3, the slender and bristle-like spicules on outer parts of tibiae, bristle-like spines on hind femora and in the case of *Plesiocera* by the presence of three submarginal cells in the wings.

The genotype species is *Pteraulacodes karooënsis* n. sp.

Pteraulacodes karooënsis n. sp.

Body predominantly black; antennal joint 1, buccal rims and cavity, palps and to a certain extent sides of face ivory yellowish; narrow hind margin of metapleural part, sides of tergites, hind margins of sternites and in ♂ greater part of last sternite yellowish or yellowish reddish; legs with coxae to a certain extent, trochanters and greater part of femora, tibiae and tarsi yellowish; hind femora above in apical halves or apical parts, apices of hind tibiae to a certain extent and apical halves of tarsi darkened or blackish brownish. *Vestiture* on frons and anterior margin of face gleaming pale sericeous yellowish in ♂; that on frons predominantly black in ♀; that on face however also pale sericeous yellowish to golden across apex in ♀; that across front part of thorax above whitish or straw-coloured whitish; sparse hairs on disc in ♀ dark in certain lights; bristly hairs and scale-like hairs on mesopleuron and bristly hairs on propleural part and on coxae gleaming sericeous whitish in both sexes; prealar, postalar and scutellar bristles reddish yellowish to reddish, with some dark bristly hairs across base of thorax; hair on sides of tergite 1 and on greater part of abdomen gleaming sericeous whitish and in ♀ sericeous yellowish; stouter bristly elements on last tergite more sericeous yellowish or golden in ♂; scaling on face, head below, pleurae, coxae, venter and legs cretaceous whitish; that on frons, occiput and behind eyes more dull ochreous yellowish; that densely on thorax and scutellum above and on greater part of abdomen above deeper ochreous yellowish; that on sides of tergites below however more whitish; that on abdomen above in ♀ dark, the pale scaling on abdomen above denser and band-like across hind margins of tergites. *Wings* vitreous hyaline, iridescent,

the base and costal cell with a feeble whitish subopacity; veins yellowish brownish or brownish to blackish brownish, usually paler at base; second vein not much bent up at its end; middle cross vein varying in position, either at about, or a little before, or a little beyond, middle of discoidal cell; squamae opaquely yellowish whitish, with a fringe of fine whitish hairs; halteres yellowish, their knobs almost whitish above. *Head* (text-fig. 129) with the eyes in contact above for a distance quite 2 times length of ocellar tubercle in ♂; interocular space on vertex in ♀ nearly or quite 3 times distance between outer margins of posterior ocelli; frons in ♀ gradually diverging anteriorly, scarcely impressed in front of tubercle; antennae with joint 2 transverse, much shorter than 1, broader than long, almost discoidal; joint 3 gradually broadened basally without a distinct and well-marked-off slender apical part, its slender terminal joint plus its longish style a very little more than half length of 3; proboscis about .8–1 mm. long, its labellar lobes much shorter than rest of proboscis and with fine hair-like spinules; palps subequal in length to antennal joint 3 (including style), the apical joint subequal in length to combined length of antennal joints 1 and 2. *Legs* with the spines and spicules pallid or very pale yellowish; middle femora with or without a spine on inner lower aspect beyond middle; hind ones in ♂ with about 5 or 6 spines from near base to apex below of which the basal ones are longer and in irregular pairs, with about 3 spines below in apical half in ♀. *Hypopygium* of ♂ (text-fig. 130) as described for genus.



TEXT-FIG. 130. Side view of hypopygium and dorsal view of beaked apical joint of ♂ *Pteraulacodes karooensis* n. gen. and n. sp.

From 2 ♂♂ and 2 ♀♀ (holotype in the Transvaal Museum and allotype in the South African Museum).

Length of body: about 5–6 mm.

Length of wing: about 4–5 mm.

Locality: Karoo: Willowmore (Brauns, 1 Dec. 1920) (holotype), 25 Dec. 1915). Koup Karoo: Koup Siding (Mus. Exp., Nov. 1939) (allotype). Namaqualand: Nigramoep (Smithers, Oct. 1941).

Chionamoeba and *Chiasmella*-group

Representatives of this small group show certain characters which are transitional between the *Lomatiinae* and the *Anthracinae* and render their taxonomic position anomalous. The presence of a poorly developed or vestigial plumula and the origin of the second main vein very near or opposite middle cross vein point to distinct affinities with the *Anthracinae*, but the close approximation of the eyes in the ♂♂, the shape of the third antennal joint, absence of a distinct circlet of hairs on apical part of latter joint, position of middle cross vein, poor

development of erect hair, and the structure of the ♂-hypopygium relate this group to the *Petrorossia*-group of the *Lomatiinae*.

Gen. *Chionamoeba* Sack

(Sack, p. 543, *Abh. Senck. Natur. Ges.*, xxx, 4, 1909; Becker, p. 448, *Ann. Mus. Zool. Acad. Imp. St. Petersb.*, xvii, 1912; Bezzi, p. 156, *The Bombyliidae of the Ethiopian Region*, 1924; Engel, p. 414, *Die Fliegen d. Pal. Reg.*, lief. 99, 1936.)

This genus, which has not been previously recorded from Africa south of Abyssinia, was very briefly described by Sack and subsequent authors. From the descriptive notes of these authors and from the descriptions of the various Palaearctic and North African species, which have been referred to it, it is evident that the new South African species described below also belongs to this genus. As in the case of many other genera this genus also appears to be very variable and, not having seen any Palaearctic representatives of this genus, it is impossible to state whether the characters given below for the South African form strictly conform to those present in the European species.

Body elongate, resembling that of *Petrorossia*, with much silvery or brilliant whitish tomentum on head and whitish tomentum on thorax, pleurae and venter. *Vestiture* in form of whitish erect hairs on frons, face and occiput, longer ones on thorax in front, propleural and mesopleural parts, on tergite 1 and more or less laterally on tergites 2-4 and on venter; those on sides of tergite 1 dense and long and those in mesopleural tuft conspicuous; metanotum without any hair on sides; plumula comparatively feeble and rather sparse; a short prealar bristle (or bristles) and in some cases postalar bristly hairs sometimes present; scaling mostly pale or whitish, sparsely present on frons; that on sides of head narrowish and sparse; that on thorax above hair-like, denser on sides; that on pleurae composed of flattish and hair-like ones, much denser than above; metapleurae bare; scaling on abdomen much denser, more conspicuous; that on legs dense and conspicuous. *Head* large, subglobular, broader than thorax, its front margin in profile broadly subtumidly rounded, the most projecting part just above antennae; frons broad, without any depression; eyes separated above on vertex, space in ♂♂ scarcely or only slightly broader than ocellar tubercle, in ♀♀ about 3 times distance between outer margins of posterior ocelli; hind margin of eyes angularly or subangularly indented, with a very short bisecting line from it just indicated; face short, not protruding, its apical part around buccal cavity sometimes slightly rim-like, slightly demarcated on each side from front part on each side below antennae by a slight groove-like depression; buccal cavity well developed, its width between eyes below narrower than interocular space in ♀♀; proboscis short, stoutish, confined to buccal cavity, its labellar lobes spinulate, elongate, well developed, only a little shorter than basal part; palps very short, rounded apically, not visibly jointed; antennae separated at bases, joint 1 short, cup-shaped, lodging joint 2, the latter transverse,

rounded or biconvex, usually only slightly shorter than 1 and with bristly hairs only on lower and outer parts; joint 3 broadened onion-like, bulb-like or club-like basally, its apical part or half slender and rod-like, ending in a short terminal joint bearing a style and sometimes a few fine hairs. *Scutellum* more or less pointed apically, appearing triangular. *Wings* relatively broad, hyaline or sometimes slightly tinged yellowish in costal and basal parts, sometimes with spot-like infusions; basal comb wanting; costal cell long; second vein originating near or very near middle cross vein, sometimes even opposite it almost at right angles, without a basally directed stump at this bend and apical loop of vein not much recurved; two submarginal cells present and base of vein between them sometimes with a stump; discoidal cell much shorter than first posterior cell; middle cross vein much before middle of discoidal cell; first posterior cell broadly open apically; alula well developed; axillary lobe also broad, broadly rounded, lobe-like. *Abdomen* elongate, slender, more so in ♂♂. *Legs* slender; middle and hind femora with some shortish spines on outer apical part; tibiae with small spicules on front ones, longer and more conspicuous ones on the others, their apical spurs short, poorly developed; front tarsi in ♀♀ modified, hairy; claws curved downwards, the front ones as well developed as middle ones or scarcely smaller; pulvilli well developed, though not reaching apices of claws. *Hypopygium* of ♂ of South African species (cf. text-fig. 131) without any process to basal parts on outer side, but with the inner apical part produced; beaked apical joints elongate, cylindrical and curved; aedeagal structure in form of a funnel lodging the aedeagus; lateral struts small. Terminal lamellae at posterior end in last sternite with their dorso-apical angles not produced.

As was stated by Bezzi (loc. cit.), this genus more closely resembles *Petrorossia* than any other genus. Its wings are however distinctly broader, the costal cell much longer, the second vein originates very much nearer middle cross vein, the discoidal cell is much shorter, the middle cross vein is much nearer base of discoidal cell, the axillary lobe and alula are much broader, a feeble plumula is present, the buccal cavity is much narrower, the frons is broader and without a depression in front of ocellar tubercle in ♀♀, the spicules on tibiae are much shorter and without a long curved bristly hair apically above between the claws.

The systematic position of this genus is anomalous. Sack described it under the *Spongostylinae* (*Anthracinae*) and Bezzi transferred it to the *Lomatiinae*. As it has characters in common with certain other aberrant genera, such as *Aphobantus*, *Petrorossia*, *Pteraulax*, *Chiasmella*, etc., which on the strength of certain characters are themselves either referred to one or other of these subfamilies, both authors have some justification for their claims. It depends upon the characters that are chosen. It is, however, evident that there is a very wide gap between the genus *Lomatia* on the one hand and the genera *Anthrax* and *Argyro-moeba* on the other. Not before all the known representatives of these various genera are collectively studied will it be possible to relegate such aberrant and

transitional forms to their respective positions in these two subfamilies or to create new groups to contain them. As this genus, however, has a few more characters in common with *Petrorossia* than with the *Anthrax*-group it is here provisionally appended to the *Lomatiinae*. From *Anthrax* and *Argyramoeba* this genus differs in having a more elongate body, no or much fewer bristles on body, less dense erect hair, a not concavely saucer-shaped second antennal joint, a terminal joint to antennal joint 3 which is not provided with a distinct and conspicuous circlet of hairs, a second vein not originating at right angles at more or less or exactly opposite middle cross vein and this base also without a stump, fewer spines on femora, much shorter and less conspicuous spicules and spurs on tibiae, etc. The other aberrant genus *Chiasmella* Bezz. (p. 156, *The Bombyliidae of the Ethiopian Region*, 1924), which Engel relegated as a subgenus of *Chionamoeba*, is not represented in the collections, but judging from Bezzi's generic description it is obviously very near *Chionamoeba*.

The only known representative of *Chionamoeba* in South Africa is a new species described below.

Chionamoeba meridionalis n. sp.

Body black; apical parts or even entire second antennal joints in ♀ sometimes yellowish; edges of buccal cavity pallid; spiracular openings on pleurae also yellowish; hind margins of tergites, more broadly on extreme sides below or even entire sides below in some ♀♀, and hind margins of sternites yellowish or pale yellowish brownish; coxae and femora black, the extreme apices of the latter yellowish; tibiae yellowish, their apices darkened, the tibiae in ♂ sometimes tending to be darkened, the front tarsi and more than apical halves of the middle and hind ones dark or blackish brown, bases of claws and pulvilli yellowish. *Vestiture* with the hairs predominantly sericeous or snow-whitish; fine hairs on occiput sometimes gleaming slightly pale sericeous yellowish in certain lights; genital tuft in ♀ gleaming whitish to very pale sericeous yellowish white in different lights; fine hairs above on tergites 3–7 in ♀ dark, entirely white in ♂; hair-fringe across hind margin of last tergite in ♀ blackish brown; hair on venter whitish; that across hind margin of last sternite in ♀ sometimes also dark; short prealar bristle on each side white or very pale yellowish; spines and spicules on legs black; tomentum on frons and head in front brilliantly gleaming silvery whitish; that on rest of body duller whitish; scaling on sides of head, pleurae, sides of abdomen, venter and legs cretaceous whitish; sparse ones on frons and hair-like ones on thorax discally above and at base also whitish, but sometimes gleaming slightly more yellowish in ♀; that on abdomen above in ♂ very dense and snow-white, but more ochreous brownish towards base and discally in ♀, becoming more yellowish to whitish on sides and posteriorly, that discally on tergites 2 and 3 in ♂ also yellowish brownish. *Wings* predominantly vitreous hyaline, iridescent; base, costal cell, base of marginal cell and first and second basal cells and base of discoidal cell with a slight yellowish tinge, and a slight or distinct blackish brown spot-like infusca-

tion at base of third vein; veins mostly pale yellowish, becoming darker towards apex; costal cell extending to near apex of second vein; the latter originating nearly at right angles at a point as far away from middle cross vein as length of latter; vein between submarginal cells without a stump at its base; discoidal cell a little more than two-thirds as long as first posterior cell; middle cross vein at a point between apical third and fifth of discoidal cell; squamae opaquely white, their fringes snow-whitish; halteres yellowish, their knobs whitish. *Head* with the interocular space in ♂ only a little broader than ocellar tubercle and in ♀ about or nearly 3 times distance between outer margins of posterior ocelli; frons at broadest part a little more than twice width of eyes seen from in front; stoutish rod-like apical part of antennal joint 3 nearly or about twice as long as bulb-like base. *Legs* with about 2 or 3 short spines on middle femora and about 4-9 on outer and upper apical aspect of hind ones. *Hypopygium* of ♂ (text-fig. 131) as described for genus.

From 6 ♂♂ and 9 ♀♀ (holotype in the Rhodesian Museum, allotype in the South African Museum and paratypes in the Durban Museum and in Museum of Natural History, Brussels).

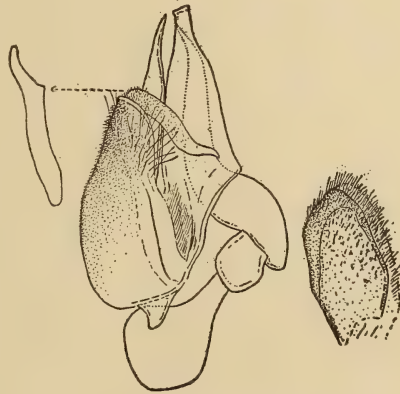
Length of body: about $4\frac{1}{2}$ – $9\frac{1}{2}$ mm.

Length of wing: about 4–9 mm.

Locality: Southern Rhodesia: Saw Mills (Rhod. Mus., 22 Dec. 1928

(types)). Natal: Durban (Isipingo N.) (Bevis, 25 Feb. 1940); Durban (Barker, 1 Feb. 1919); Amanzimtoti (Zumpt, Jan. 1950). Zululand: Mfongosi (Jones, March 1917). Belgian Congo: Lake Tanganyika; Albertville (F. J. Francois, 21 Feb. 1951).

Compared with descriptions of Palaearctic species this species appears to be very near *nivea* Rossi from Southern Europe and North Africa, but appears to differ in having entirely white hair on bases of antennae, in having dark hairs on abdomen above posteriorly in ♀, no stump to base of vein between submarginal cells, apically darkened or even entirely darkened tibiae, broader frontal part in front of antennae, slightly narrower interocular space in ♂, etc. The specimens from the Belgian Congo differ very slightly from the southern form in having the second antennal joints dark, dark buccal rims, a more intense yellowish tinge in wings and a more conspicuous dark spot at base of third vein. Mr. Francois states that he caught the Congo specimens on sand during the hottest part of the day.



TEXT-FIG. 131. Side view of hypopygium, dorsal view of right beaked apical joint, and (below right) left terminal lamella of ♂ *Chionamoeba meridionalis* n. sp.

Subfam. *Anthracinae*

The African genera *Xeramoeba* n. gen., *Anthrax* Scop., *Argyramoeba* Schin. and *Dicranoclista* Bezz. belonging to this subfamily are easily distinguished from the genera of the preceding subfamilies in the following respects: The second main vein (R_2+R_3) in the wings originates from the third vein (R_4+R_5) at right angles either at a point not farther away from middle cross vein ($r-m$) than length of the latter or more often very near to middle cross vein or opposite in line with it, never near base of third vein or halfway between middle cross vein and base of third vein. With a few exceptions there is a tendency for bases of both the second vein and upper cubital branch to have a basally directed stump of variable length. A plumula or small tuft of hair on ligamentous connection between the squama and scutellum is always present and well developed. The hind margin of eyes is always distinctly sinuous or more usually angularly or deeply indented and with a distinct, abbreviated, bisecting line extending forwards from indentation. The antennae are on the whole more widely separated, the distance between their bases usually more, or considerably more, than length of the first joint and the base of the third joint is usually rapidly broadened, distinctly bulb-like, onion-shaped, or discoidal. Moreover the slender part of joint 3 usually has a terminal joint-like element bearing the style and apically also a circlet or crown of hairs. Other characters which also distinguish this group are the bare metapleurae, the short proboscis which is confined to the buccal cavity and the presence of conspicuous, broadish, flattened, lanceolate, bat-shaped, wedge-shaped, or cuneiform, white scales across the hind margins of the tergites. These rows of scales are more or less interrupted discally, dense on the sides and those on last two or three segments very dense, extensive, conspicuous and usually brilliantly silvery whitish, especially in ♂♂.

The only other subfamily with which representatives of this group can be confused is the *Exoprosopinae* which also have some of the above-mentioned characters. From the latter they may, however, be distinguished by the presence of a terminal stylar or joint-like element bearing a style and a circlet of hairs, by the bare metapleurae, the absence of flattened, scale-like hairs along the hind margins of alula and squama, the presence of distinct pulvilli and by the presence of a tuft of hairs and not a circlet of spines on ovipositor of ♀♀.

As in the case of most Bombyliidae very little is known as regards the life histories of members of this group. From what is known in the case of Palearctic and American forms it appears that species of *Anthrax*, *Argyramoeba* and *Spongostylum* are parasitic on the larvae or in the nests of various kinds of solitary bees and wasps and fossorial wasps. A species of *Spongostylum* is, however, said to parasitize the grubs of certain Cicindelid-beetles.

Gen. *Xeramoeba* n. gen.

This new genus, represented by only two ♂♂ and two ♀♀ in the collections, agrees with *Chionamoeba* of the previous group in many respects, but also differs in certain important respects as follows:

Body less elongate, relatively shorter, more like that of a *Villa* or *Thyridanthrax*; abdomen relatively broader, more triangularly ovate; integument of frons and face, sides of head and pleurae much duller, covered with faint whitish pruinescence, not brilliantly silvery. *Vestiture* similarly pale, the hairs and bristly hairs, though relatively sparsely developed, slightly longer than in *Chionamoeba*; those on frons and face much longer and denser; those on body above also denser and longer, with distinctly more hairs on abdomen; those in collar, mesopleural tuft and on propleural parts as dense as in the other genus; prealar and postalar bristles longer; plumula well developed; hairs on pleurae sparse; metapleurae also bare; scaling also predominantly pale and sparse on head in front; that on thorax above also hair-like; that on abdomen above less uniform, composed of fine hair-like ones and slightly longer and broader ones, the latter arranged more across hind margins or hinder parts of tergites; scaling on legs dense and flattened as in *Chionamoeba*. *Head* also large, subglobular, broader than thorax, its front margin in profile not so tumidly prominent at level of antennae, the antennal bases appearing distinctly slightly more depressed; frons relatively narrower, its margins distinctly less rapidly broadening anteriorly, thus relatively less broad just above antennae, a distinct central groove in basal half or part present in ♀; interocular space also broad, the eyes widely separated in both sexes, more narrowly in ♂♂ and in ♂♂ more widely than in *Chionamoeba*; occipital groove also in form of a foveate depression leading into a gap, the depression however broader, the lobes not touching as in the preceding genus; ocellar tubercle more pimple-like; face distinctly, though slightly, more tumid or convex medially and discally, its apical margin not slightly rim-like; genal furrows or slits relatively longer; proboscis short, confined to buccal cavity, its labella also well developed and spinulate; palps very short, broadened apically and provided with hairs; hind margin of eyes angularly indented, with a very much longer bisecting line; antennae (text-fig. 132, top) separated, joint 1 relatively longer, joint 2 disc-shaped, transverse, narrower than apex of 1, joint 3 with a broad bulb-shaped base and a relatively stouter and shorter slender part, the latter ending in a short and bluntish terminal joint bearing a distinct crown of fine short hairs. *Wings* very similar, relatively broad, hyaline; basal comb small, but more developed than in *Chionamoeba*; only two submarginal cells present; costal cell shorter; second vein originating almost at right angles opposite or near middle cross vein, also without a stump; base of upper cubital branch without a stump; first posterior cell broadly open; middle cross vein much before middle of discoidal cell; lower vein of latter sinuous, more angularly bent at base and there with a tendency to develop a stump; axillary lobe much broader than anal cell. *Legs* slightly stouter and relatively shorter; front femora unarmed; middle and hind ones with some spines on anterior lower aspect; tibiae with the spicules distinctly more developed and more conspicuous than in *Chionamoeba*, those on lower part feeble and scattered, the apical spurs distinctly longer and more strongly developed, the hind ones the strongest; front tarsi in ♀♀ also modified and hairy, shorter than the others; claws curved downwards, the front ones not

reduced; pulvilli present. *Hypopygium* of ♂ (text-fig. 132, lower figures) with a rather conspicuous basal process to the shell-like basal parts which also have some hairs dorso-apically; beaked apical joints compressed and twisted as shown in the figures; aedeagal apparatus in form of a tube-like or funnel-like process lodging the aedeagus proper and ending apically below in a downwardly directed recurved hook or process. As is obvious from a comparison of the figures the hypopygium of this genus is different from that of the preceding genus *Chionamoeba* and the following genus *Anthrax*. The tube-like aedeagal process, however, is reminiscent of that of the former and the downwardly directed apical hook of this structure also resembles that present in some species of *Anthrax*.

This genus also shows some affinities with *Anthrax*, but differs in having a broader foveate depression behind ocellar tubercle, a broader occipital gap, no bare space on face, relatively longer face which is discally slightly prominent, shorter and pale hairs on head in front, short hairs on abdomen, absence of dense or conspicuous tufts on sides of tergites, and in its wing-characters. As it has more in common with the *Anthracinae* than with the *Petrorossia* and *Chionamoeba*-groups it is provisionally relegated to this subfamily. Represented by only the genotype species *Xeramoeba apricaria* n. sp.

Xeramoeba apricaria n. sp.

Body black, but hind margin of metapleurae, hind margins of tergites, broader posteriorly and on sides, the inflexed sides of abdomen and broad hind margins of sternites and apical part of abdomen in ♂ yellowish reddish; buccal cavity yellowish; proboscis blackish brown; legs predominantly pale yellowish reddish, the coxae mainly dark or blackish, upper apical part of hind femora dark brownish to a variable extent, the apical parts of tarsi darkened, and more than apical halves of claws black. *Vestiture* with the bristly hairs on head in front including antennae, excepting dark hairs on upper aspect of second joints, gleaming sericeous yellowish, slightly paler on face; fine hair on occiput in ♀ more whitish; fine shortish hairs on disc of thorax pale sericeous yellowish; longer hair in collar, mesopleural tuft, propleural and prosternal parts and sparse ones on pleurae, bristly ones on coxae, plumula, tuft on sides of tergite 1, hairs on venter and inflexed sides of abdomen sericeous whitish; shortish bristly hairs on abdomen above, especially posteriorly and on sides of tergites, gleaming more sericeous yellowish in ♀; prealar, postalar and scutellar bristles whitish, or very pale sericeous yellowish only in certain lights; spines and spicules on legs black; sparse scaling on frons anteriorly pale yellowish; fine ones on sides of head more whitish; fine hair-like scales on disc of thorax and scutellum pale sericeous yellowish in certain lights; the longer and denser ones on sides more whitish; denser scales on pleurae and coxae snow-whitish; longish ones across hind border of scutellum also white like the longish hair-like ones across hind margin of tergite 1; fine hair-like scaling on rest of abdomen above reddish brownish on disc of tergite 2 and to a certain extent also across 3 and 4, but with longer ones on 3-7 which are yellowish in ♀ and whitish in ♂, those across these tergites, especially on sides and on last three tergites, appearing

more whitish; scales on inflexed sides distinctly more white and also broader; scaling on venter and legs snow-whitish, that on tibiae appearing more yellowish in certain lights. *Wings* glassy hyaline, iridescent, the extreme base and costal cell subopaquely yellowish whitish; veins brownish, but false vein in costal cell yellowish; middle cross vein at about basal third or fourth of discoidal cell; squamae whitish and white-fringed; halteres yellowish, their ovate knobs slightly paler apically. *Head* with the central groove in basal part of frons in ♀ broad, fairly deep; interocular space on vertex in ♀ about 3 times width of ocellar tubercle and in ♂ about 2 times width of tubercle; antennae (text-fig. 132, upper figure) separated by about, or a little more than, length of joint 1 in ♀, slightly less in ♂; joint 2 disc-shaped; broad base of joint 3 bulb-shaped, the more slender apical part rather stoutish, ending apically in a short bluntish terminal joint bearing a crown of fine hairs. *Legs* with about 2 subapical spines on lower anterior part and sometimes 2 in upper apical part of middle femora; hind ones with about 3 to 5 spines on anterior or outer lower part and a few on anterior apical part; front tarsi much shorter than front tibiae. *Hypopygium* of ♂ (text-fig. 132, lower figures) as described for genus.

From 2 ♂♂ and 2 ♀♀ (types in the South African Museum).

Length of body: about $5\frac{1}{2}$ – $7\frac{1}{2}$ mm.

Length of wing: about 6– $8\frac{1}{2}$ mm.

Locality: Koup Karoo: Koup Siding (Mus.

Exp., Nov. 1939) (holotype); Merweville Dist. (Zinn, Jan.–Feb. 1947). Karoo: Aberdeen (Mus. Exp., Nov. 1935) (allotype).

This species has a superficial resemblance to a clear-winged *Villa* or *Thyridanthrax*.

Gen. *Anthrax* Scop.

(Scopoli, p. 358, *Entom. Carniol.*, 1763; Schiner, in part, p. 51, *Wien. Ent. Monatschr.*, iv, 1860; Loew, in part, p. 209, *Dipt. Faun. Sudafr.*, i, 1860; Bezzi, p. 34, *Zeitschr. f. Hymen. u. Dipt.*, 1908; Becker, in part, p. 445, *Ann. Mus. Zool. Acad. Imp. St. Petersb.*, xvii, 1912; Bezzi, p. 121, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 158, *The Bombyliidae of the Ethiopian Region*, 1924; Engel, p. 420, *Die Fliegen d. Pal. Reg.*, lief. 99, 1936; Austen, p. 109, *Bombyliidae of Palestine*, 1937.)



TEXT-FIG. 132. Top: Right antenna of ♀ *Xeramoeba apricaria* n. gen. and n. sp. Below: Side view of hypopygium, dorso-apical view of right beaked apical joint, and apical view of the aedeagal process of ♂ of same species.

There appears to be some confusion as to the generic identity of species referred to *Anthrax*. According to Bezzi the genus *Anthrax*, as used in a very broad sense by the various authors, corresponds to the genus *Argyramoeba* s. l. of Schiner. The attempt of Sack in his monograph (pp. 503-46, *Abh. Senckenb. Natur. Ges.*, xxx, 4, 1909) to restrict certain Palaearctic species to various new genera erected by him have not met with any approval, and Becker, Bezzi and Engel relegated his new genera *Chalcamoeba*, *Leucamoeba* and *Satyramoeba* as synonyms of *Anthrax* (*Argyramoeba* s. l.) as defined by them. This procedure has been adopted in this monograph and all the South African species in the collections before me have been referred to *Anthrax*. The distinguishing characters of this genus, as based on South African forms, are as follows:

Body usually black; facial part, sutural parts of pleurae and venter sometimes more brownish or yellowish; hind margins of tergites posteriorly, especially on sides of last four segments in ♂♂, inflexed sides of abdomen and hind margins of sternites often yellowish, brownish or reddish to a variable extent; legs with the femora usually dark, blackish brown or black, sometimes paler, often with the lower apical part more yellowish, the tibiae and tarsi usually paler, more yellowish or brownish, rarely as dark as femora, the legs sometimes entirely pale; apical parts or entire claws always dark; a silvery whitish or sometimes a golden pruinescence sometimes present on sides of frons and face along margins of eyes or on pleural parts and this pruinescence sometimes broken up into spots or patches. *Vestiture* in the form of erect hairs, bristly hairs and bristles, fine hair-like scales, flattened scales and usually more or less conspicuous flattened, broadish, white scales; stoutish prealar and postalar bristles always present and the bristles across hind border of scutellum, across hind margins of tergites, especially posteriorly, and on sides well developed and conspicuous; hairs and bristles on abdomen above either scattered and dense all over the tergites or more often more or less concentrated transversely in rows across hind margins or hinder parts of tergites; bristly hairs on sides of abdomen almost always black, long, dense, conspicuous, shaggy or in tufts, but those on sides of tergite 1 usually predominantly white; hairs on pleurae, except in mesopleural tuft, relatively sparse and longish hair-like scales being more conspicuous there; metapleural tuft comparatively small; hairs on face dense in front, absent on a bare space below antennae; hairs in collar region very rarely without some or numerous whitish ones across anterior part; fine hair-like scaling on thorax denser and longer on sides; broadish, flattened, bat-shaped, wedge-shaped or cuneiform white scales usually present across hind margins of tergites, and usually interrupted discally, those on sides of last two or three segments more conspicuous, longer, sometimes tuft-like; rest of the white scaling on these segments, especially in ♂♂, usually very dense, conspicuous and silvery or brilliantly silvery, sometimes arranged transversely; those across hind margin of tergite 1 on sides usually longish and hair-like; scaling on venter either hair-like or flattened; white scaling on abdomen above may or may not extend right round to inflexed part between the black tufts; scaling on femora and tibiae usually

flattened and that on coxae more often fine and hair-like. *Wings* (pl. i, figs. 1-17) more commonly with the base, costal cell and anterior basal part yellowish brownish, brownish to chocolate brownish to a variable extent, sometimes extensive, in addition with or without a variable number of spots or spot-like infuscations on cross veins, the wings sometimes extensively spotted or with large confluent spots and in some cases even entirely dark or infuscated, rarely predominantly or entirely hyaline; two submarginal cells always present; base of second vein originating opposite or just in front of middle cross vein, but sometimes a little distance in front of it and usually at right angles, rarely more obtusely, more often with a distinct and relatively long basally-directed stump, the vein itself sometimes very sinuous and with or without a deep backward bend or loop, sometimes with a short stump at bend of loop; middle cross vein usually at about the middle or a little before middle of discoidal cell; lower vein of the latter cell usually sinuous, sometimes angularly or subangularly bent and even with a short stump at this bend; first posterior cell either broadly open on hind border or sometimes narrowed apically; anal cell usually much narrowed apically; axillary lobe rarely not much broader than anal cell; squamae either entirely or for the greater part subopaquely whitish and white-fringed; plumula well developed. *Head* almost spherical; occipital gap narrow, the lobes contiguous or subcontiguous; occiput with very dense, fine, shortish hairs round its rims; eyes with the hind margin subangularly or angularly indented and a distinct bisecting line of variable length present; ocellar tubercle small, prominent, pimple-like and some distance away from beginning of occipital furrow; interocular space at narrowest part just in front of ocellar tubercle always much more than width of tubercle, the eyes thus never very close together, this space relatively broader in ♀♀ than in ♂♂; frons rapidly broadening apically, with a distinct, rarely indistinct, central groove basally in front of tubercle in ♀♀, anterior part of frons usually convex; antennae (text-fig. 133 and also 161) never entirely contiguous, almost always separated by at least length of antennal joint 1, joint 1 usually broader apically than basally, its inner lower part usually projecting slightly; joint 2 disc-shaped, lens-shaped, barrel-shaped or subglobular, narrower than base of joint 3; the latter with its basal part broad, dilated, bulb-shaped, onion-shaped or discoidal, its lower edge sometimes rim-like and projecting, the base of 3 never fitting closely ball-and-socket-like in joint 2, the latter joined on to 3 by a short peduncle, the slender rod-like part of joint 3 of variable length, ending in a terminal joint or stylar element of variable length, the latter pointed or ending in a sort of fine stylet, sometimes it is blunted, the terminal joint always with a distinct crown or circlet or pencil of hairs; proboscis short, stoutish, confined to buccal cavity, its labellar part well developed,



TEXT-FIG. 133. Inner aspect of right antenna of ♂ *Anthrax conspurcata* Wied.

broad and spinulate; palps very short, confined to buccal cavity, their apical parts club-like and provided with hairs; genal part only evident anteriorly on each side of buccal cavity as a deep, narrowish, foveate or sunken depression or pit. *Legs* usually with a variable number of spines in a row on lower anterior aspect of femora, those on front ones fewer or sometimes wanting, those on hind femora more strongly developed, often duplicated or triplicated basally below in ♂♂ especially, usually with some spines also present on outer and upper apical aspect; fine hairs or fine bristly hairs usually present on hinder surfaces of front and middle femora; tibiae with four rows of spicules, those in upper rows usually denser and longer and those on lower anterior aspect of front ones wanting or very minute; apical spines on middle and hind tibiae well developed, sometimes markedly long, especially on lower apical aspect; front tarsi in ♀♀ modified, shorter than in ♂♂, the last four joints with fairly dense fine hairs and tending to be slightly thickened, their claws also much smaller than the others; claws and pulvilli well developed, the former in ♂♂ scarcely or not more developed or longer than in ♀♀, but anterior claws in ♀♀ always more reduced. *Hypopygium* of ♂♂ (text-figs. 135-65) with the two symmetrical clasper-like basal parts always produced basally into a flattened process, their apical part in most cases also produced into a blade-like or prong-like process; beaked apical joints very variable in form and shape, usually much flattened and twisted, or leaf-like, their upper and lower margins extended to a variable extent and the pointed apex or beak usually recurved outwardly and backwardly to a variable extent, sometimes bifid apically or with more than one projection or tooth, their surfaces or upper basal part rarely with conspicuous hairs; aedeagal complex usually with the apical part of the guide-part, which lodges the aedeagus proper, produced ventralwards into a recurved hook or plate, flanked basally on each side by a subsidiary process or tooth, sometimes also with another smaller process on each side, sometimes with a medial flattened keel-like or wattle-like extension or even a disc-like expansion below apical part; lateral struts and medial basal strut usually large and well developed, broad, the former usually tongue-shaped, ladle-shaped or shoehorn-shaped, the latter with its dorsal and basal edge often expanded on each side into a flange or wing-like extension, its posterior margin sometimes also with a flattened lateral extension. Last sternite opposite hypopygium sometimes slightly notched or indented apically, rarely with its posterior angles produced hook-like. Terminal lamellae in last sternite variable in shape, their dorso-apical part produced into a hook-like or spine-like process in some species.

The habits in the field of representatives of this genus are much like those of other Bombyliidae found in the drier and semi-arid parts of South Africa. They are more frequently found resting on the sand or bare patches of soil in the sun. During spring and early summer, when they are abundant both in numbers and species, they are often found on the flowers of the ubiquitous Mesembryanthemums and Compositae. By far the greater number of South African species

are found in the drier parts of the Union. They are thus very well represented in the Karoo, Namaqualand, Bushmanland, the drier parts of the Orange Free State, the Kalahari, Bechuanaland, and South-West Africa. Some species, however, appear to be very widely distributed, occurring in all types of ecological environments in the subcontinent and even extending into the more subtropical and tropical parts of East Africa. A large number of species appear to frequent only the savannah, grass-veld and broken thorn-bush type of country. Quite a number of species appear to be the specific counterparts of species occurring in North Africa and the southern Palaearctic region.

The larvae of the various species of *Anthrax* are parasitic in the nests of solitary bees such as *Anthophora*, *Megachile*, *Osmia*, etc., and wasps such as *Odynerus* and many species of fossorial wasps. The abundance of *Anthrax* species in the drier and semi-arid parts of South Africa is probably due to the great variety of Hymenopterous hosts inhabiting the same type of environment. It is however regrettable to state that with the exception of *Anthrax diffusus*, which is parasitic in the earthen nests of a certain species of *Megachile* and *Anthrax caffer* n. sp. which was bred from the nests of *Ceratina nasalis*, the life history of no other South African species of *Anthrax* is known. Here is a very wide field for future study and investigation.

Owing to the marked parallelism of wing-pattern among species of *Anthrax* both in the Ethiopian and Palaearctic Regions and among certain species occurring in the latter region and others peculiar to the former, much confusion in the classification and determination of the various species has resulted. The fact that there are Palaearctic and Oriental species in which the wing-pattern or infuscation is very similar to or identical with that of certain South African forms has resulted in erroneous conclusions as to the geographical distribution of certain forms. As the biological and ecological environment of insects in tropical or subtropical southern Africa is entirely different from that found in north Africa and southern Europe there is no reason to believe that species of *Anthrax* or any other Bombyliid found parasitizing certain species of Hymenoptera in the Palaearctic region are identical with South African species which have different species of hosts. At most such counterparts can only be considered as distinct subspecies or varieties which through the influences of both the physical and biological environment have so far deviated from the norm that they are in reality specifically different. In view of this superficial similarity of wing-pattern the species of *Anthrax* are in many cases very difficult to distinguish. This difficulty is increased when specimens or forms transitional in certain accepted wing-characters are present in very large collections. The key to the various known South African species which is appended below is thus merely one of convenience and by no means attempts to allocate species according to natural affinities. As the species of *Argyramoeba* s. str. resemble those of *Anthrax* in external appearance and also in certain characters they have also been included in the key.

Gen. *Argyramoeba* Schin.

(Schiner, p. 51, *Wien. Ent. Monatschr.*, iv, 1860; Becker, pp. 447-8, *Ann. Mus. Zool. Acad. Imp. St. Petersb.*, xvii, 1912; Bezzi, pp. 221-4, *Bull. Soc. Roy. Entom. d. Egypte*, 1924.)

(Syn. = *Anthracamoeba*, *Chrysamoeba*, *Molybdamoeba* and *Psammatamoeba* of Sack, pp. 515, 516, 519 and 536, *Abh. Senckenb. Natur. Ges.*, xxx, 1909; *Spongostylum* Bezzi, nec Macquart, p. 124, *Ann. S. Afr. Mus.*, xviii, 1921, and p. 167, *The Bombyliidae of the Ethiopian Region*, 1924; *Spongostylum* Engel, in part, p. 438, *Die Fliegen d. Pal. Reg.*, lief. 99, 1936; *Spongostylum* Austen, in part, p. 113, *The Bombyliidae of Palestine*, 1937.)

There is much confusion in literature as to the generic name to be applied to species belonging to this group. This confusion is in the first place due to the fact that authors have applied in a very broad sense the name *Argyramoeba* indiscriminately to numerous species now referred to *Anthrax*. Secondly Sack in his monograph on the *Spongostylinae* erected four new genera, *Anthracamoeba*, *Chrysamoeba*, *Molybdamoeba* and *Psammatamoeba*, which Becker subsequently proved to be synonymous with the *Argyramoeba* s. str. of Schiner. One of these genera, *Molybdamoeba*, was even restricted to the Palaearctic species *Anthrax tripunctatus* Wied. which Schiner had already mentioned first as belonging to his *Argyramoeba* and which Becker subsequently designated as the genotype of the latter. Still a third source of confusion was due to the fact that subsequent authors dealing with both Palaearctic and Ethiopian species ignored Becker's statements in regard to the identity of *Argyramoeba* s. str. and continued to refer both species with two submarginal cells and those with three submarginal cells in the wings to the genus *Spongostylum* which Macquart (p. 53, *Dipt. Exot.*, ii, 1840) erected to contain a South American species with three submarginal cells. Subsequently Bezzi in his paper on Egyptian Bombyliidae (loc. cit.), however, adopted the genus *Argyramoeba* for the group of species having two submarginal cells in the wings. As the genus *Spongostylum* was described before *Argyramoeba* the former has priority if it can be satisfactorily proved that it is generically identical with *Argyramoeba* s. str. Instability as regards the base of the upper cubital branch and its abnormal connection with the second main vein in the wings of Bombyliidae cannot be advanced as an argument against the three-celled stage being accepted as a character of taxonomic value. It is relatively easy to distinguish an abnormal connection from a normal one especially if other distinguishing characters are also taken into account. A careful revision of this group of species is necessary to clear up this confusion between *Argyramoeba* s. str. and *Spongostylum*. In view, however, of the fact that all the South African species in the collections before me have two submarginal cells in the wings, white and black tufts on sides of the abdomen and a socket-like second antennal joint as described for the genotype species *tripunctata*, they are all provisionally referred to the genus *Argyramoeba* of Schiner though the

entirely different type of hypopygium present in two of the species would appear to necessitate the erection of a separate and new genus to contain them.

The genus *Argyramoeba* agrees with *Anthrax* in most of its characters but differs in the following respects: *Body* with the red on sides of abdomen and across hind margins of tergites and sternites, especially in ♂♂, tending to be more developed. Antennae with joint 2 (text-fig. 134) characteristically flattened, bowl-shaped or saucer-shaped and very concave apically, in this concavity of which the globular or broad bulb-shaped base of joint 3 fits very closely like a ball in a socket. *Vestiture* with the bristles on sides of thorax in front of wings, on postalar calli, on scutellum and on abdomen above more strongly developed; long hairs on sides of tergites 2-5 in the form of black and white tufts of long flattened, lanceolate or strap-like scale-like hairs among which are intermixed ordinary bristle hairs; tufts on sides of tergites 2 and 4 usually black and those on sides of 3 and 5 white; scaling on body comparatively denser and more developed and the broadish, flattened scales on abdomen posteriorly usually duller, more cretaceous whitish, not brilliantly shining silvery white as in majority of ♂♂ belonging to species of *Anthrax*; scales among hairs on face relatively longer and denser; hair-like scaling on pleurae distinctly very much denser. *Wings* in all the known South African species with a variable number of spots on cross veins, but without a very distinctive or well-marked pattern of infuscations and spots as in many species of *Anthrax*. *Legs* with the claws of ♂♂ usually more obviously developed and distinctly longer than in ♀♀, distinctly much more so than in the case of *Anthrax*. *Hypopygium* of ♂♂ (text-figs. 166-70) differs from those of *Anthrax* in not having the apical angles of the basal parts produced into a process or prong; beaked apical joints more or less triquetrous basally, usually with a raised or carinate crest or prominence dorsally and basally and ending apically in a single point or beak; aedeagus either thrown into a conspicuous loop enveloped and suspended in a special type of membrane or its base is globularly or spherically dilated; rest of aedeagal complex in form of a V-shaped guide which has apically either two ventrally and backwardly directed tooth-like or spine-like processes or two medial beak-like processes, one above the other; lateral struts and basal strut relatively much smaller and much rotated in the species with a loop in the aedeagus; dorso-apical angles of the terminal lamellae in the ♂♂ of the known South African species not produced into a spine-like or hook-like process.

The habits of the species of *Argyramoeba* are very similar to those of *Anthrax*. Most of the South African forms are also more common in the drier and semi-arid parts than in forested or wooded regions. The biology and life histories of



TEXT-FIG. 134.
Inner aspect of
right antenna of
♂ *Argyramoeba*
punctipennis
(Wied.).

South African forms are not known, but one species has been seen to frequent holes made by certain solitary bees belonging to the genus *Fidelia*. According to European observers the larvae of this genus are parasitic in the nests of species of solitary bees and wasps.

Key to the known South African species of Anthrax and Argyramoeba s. str.

1. (a) Long vestiture on sides of abdomen in form of dense hairs, bristly hairs or bristles and those on extreme sides of tergites 2-4 black or dark and, if pale, without any long, flattened, scale-like hairs; white scaling posteriorly on abdomen, if present, more often gleaming pearly white or silvery white; antennae (text-fig. 133) with joint 2 usually lens-shaped, disc-shaped, barrel-shaped, or subglobular, with the bulbular or discoidal part of joint 3 not closely lodged ball-and-socket-like in joint 2, but with the latter joined on to joint 3 by a sort of short peduncle.
 2 (*Anthrax* Scop.) (p. 359)
- (b) Long vestiture on sides of abdominal tergites 2-5 in form of bristly hairs and black and white tufts of long, flattened, lanceolate, scale-like hairs ending in sharp points or sometimes blunt apically; white scaling on abdomen posteriorly duller, more chalky or cretaceous whitish; antennae (text-fig. 134) with joint 2 very much more flattened, usually more saucer-shaped, bowl-shaped, very concave apically, usually slightly broader across its apical rim than bulbular basal part of joint 3 which fits into it like a ball in a socket, no visible peduncle-like part of joint 2 being apparent.
 63 (*Argyramoeba* Schin. s. str.) (pp. 364, 451)
2. (a) Wings very extensively spotted or maculated throughout, the spots or infusions also extending to hind border along some of the posterior veins.
 3
- (b) Wings not extensively spotted or maculated throughout, spots or infusions if present usually restricted to cross veins, not reaching hind border along posterior veins.
 5
3. (a) Wings with more extensive infuscation in form of large spots and confluent patches separated by hyaline areas, occupying entire basal part, across middle and in apical parts at ends of veins and at apex of first posterior cell; vein between submarginal cells very sinuous and with a stump or an indication of one at its posterior bend; second vein originating at right angles opposite or very near middle cross vein and provided with a longish stump at bend; antennae very widely separated, space between them more than length of joint 1; joint 2 flattened, saucer-shaped; bulbular part of joint 3 discoidal and its basal margin rim-like; hairs on head shorter and denser; that on rest of body, especially on sides above, much denser; white scaling on disc of abdomen less developed, without any white ones across hind margins of tergites on extreme sides; venter without any flattened white scaling; scaling on legs dark or brownish; hind tibiae with a row of dense spicules on outer part, or feathery due to an outer and an inner row of very dense longish scales; larger forms, about 14-15 mm. long.
 4
- (b) Wings (pl. i, fig. 2) with less extensive blackish brown infuscation occupying the base, costal cell, in form of a broadish fascia across base of third vein to base of fourth posterior cell, a broadish infusion just beyond middle from costal cell to discoidal cell and extending towards hind border as infusions along veins separating the latter cell from posterior cells and also along veins of third posterior cell to hind border and also with a large spot at base of second submarginal cell, another at base of third posterior cell and a small one at apex of anal cell; greater part of axillary lobe and anal cell and apical part of wings hyaline; vein between submarginal cells normally sinuous and without a stump at its posterior bend; second vein originating more obliquely at a distance equal to length of middle cross vein before the latter and without a distinct stump at its bend; antennae relatively close together, about length of joint 1; joint 2 subglobular or barrel-shaped, not much broader than long; bulbular part of joint 3 bulb- or onion-shaped, its basal margin not prominently rim-like; hairs on head, thorax and sides of abdomen distinctly less dense; white scaling on abdomen above

more developed, with flattened white ones present even on extreme sides of tergites between the black hairs; venter with flattish white scales; legs white-scaled; hind tibiae with the spicules normally developed; smaller form, only about 8–10 mm. long.

- ♂ *nubeculosus* n. sp. (p. 392)
4. (a) Tarsi very much shorter than tibiae; antennae much nearer together, space between them only about twice length of joint 1; terminal joint of joint 3 very much less than half length of slender part; infuscation in marginal cell not continuous apically, but leaving a clear subapical area; infuscation at apex of second vein usually in form of two large confluent spots; end of second vein much more deeply looped; first posterior cell usually without or with only a small or indistinct clear spot at base; vein between discoidal and third posterior cells angularly bent hindwards and usually with a small stump at the bend; vein between submarginal cells more sinuous; hair on face, in collar, sides of thorax, pleurae and coxae with more pale ones intermixed; hair-like scaling on sides of thorax above pale; dark scaling on abdomen above more black and hair-like and the more slender white, flattened scales across hind margins on sides of tergites 2–4 longer, cuneiform and duller white; dense silvery scaling at apex of abdomen on last two tergites in ♂ transverse and elongate, that in ♀ longer and cuneiform; scaling on legs paler and that on hind tibiae not very dense and conspicuous. ♂ ♀ *conspurcata* Wied. (p. 387)
- (b) Tarsi long, subequal in length to tibiae; antennae more widely separated, space between them quite three times length of joint 1; terminal joint of joint 3 longer, almost or about half length of slender part; infuscation in marginal cell of wings (pl. i, fig. 1) continuous apically, leaving only a small clear preapical area; infuscation at apex of second vein in form of a small spot; end of second vein only slightly recurved; first posterior cell with a large clear spot at base; vein between discoidal and third posterior cells only sinuous and without a stump; vein between submarginal cells only broadly V-shaped; hair on face, in collar, sides of thorax, pleurae and coxae entirely dark or black or with much fewer pale ones; hair-like scaling on sides of thorax above dark; dark scaling on abdomen above gleaming more purplish black and more lanceolate and the shorter, white, flattened ones across hind margins of tergites 1–4 laterally shorter, broader and gleaming silvery; dense silvery scales on last three segments in ♂ less transverse and very much shorter and that on sides of tergite 6 in ♀ also shorter; scaling on legs darker, that on hind tibiae characteristically dense and conspicuous. ♂ ♀ *plumipes* n. sp. (p. 390)
5. (a) Wings darkly infuscated brownish or chocolate brownish throughout, the basal and costal parts scarcely or only very slightly darker and usually with spot-like infuscations on all the cross veins. 6
- (b) Wings not uniformly or darkly infuscated throughout, either predominantly hyaline or more usually with some well-marked-off dark infusion or pattern anteriorly and basally and either with or without spots or spot-like infusions on cross veins in clearer parts and, if infused or tinged throughout, the apical and hinder parts always distinctly clearer or more hyaline, contrasting with darker anterior and basal parts. 7
6. (a) Smaller form, about 5–6 mm. long, with a wing-length of about $6\frac{1}{2}$ mm.; hair predominantly blackish brown above, more whitish or greyish white below, with greyish white or whitish hairs intermixed on face and whitish or yellowish white ones on sides of tergite 1; abdomen without any flattened, gleaming or silvery white scaling; axillary lobe narrower, more parallel-sided, not much broader than anal cell; squamae whitish, white-fringed; plumula also whitish; halteres predominantly pale, their knobs mainly pale; antennal joint 2 less flattened, only about half as long as broad; apices of femora, the tibiae and tarsi paler yellowish; hind femora with fewer spines and tibiae with fewer spicules; posterior apical angles of last sternite in ♂ not produced spine-like; apical part of clasper-like basal parts of hypopygium of ♂ not produced and their beaked apical joints wrench-shaped. ♂ ♀ *nanus* n. sp. (p. 393)
- (b) Larger form, about $11\frac{1}{2}$ – $15\frac{1}{2}$ mm. long, with a wing-length of about $13\frac{1}{2}$ –17 mm.; hair entirely black above and below, that on face also black or dark blackish brown and with dark or black ones on sides of tergite 1; hind margins of tergites on sides and, in ♂ especially, on sides of last two with flattened, silvery, white scaling; axillary lobe

distinctly much broader, broadly rounded and much broader than anal cell; squamae brownish, dark-fringed; plumula black; halteres dark brownish, only apical margin of the knobs pale or whitish; antennal joint 2 lens-shaped, more flattened and very much more than half as broad as long; apices of femora, the tibiae and tarsi darker, more castaneous or reddish brownish; middle and hind femora with more numerous spines and tibiae, especially on outer apical part of hind ones, with distinctly more numerous and denser spicules; apical angles of last sternite in ♂ produced spine-like; apical part of clasper-like basal parts of hypopygium in ♂ produced blade-like and the beaked apical joints not wrench-shaped. . . . ♂ ♀ *badius* n. sp. (p. 394)

7. (a) Wings more extensively infuscated, spotted, or tinged in basal half or basal and anterior parts, the anal and axillary cells always infuscated to a greater or lesser extent, sometimes with spots or indications of spots on cross veins, or the wings are dark basally and anteriorly and imperceptibly becoming clearer and more hyaline apically and posteriorly. . . . 8
- (b) Wings either predominantly hyaline or for the greater part hyaline, with only the base, costal cell and to a variable extent the first and second basal cells tinged yellowish brownish or brownish, or with only spots on cross veins in this region, but with the anal and axillary cells entirely hyaline. . . . 57
8. (a) Basal and anterior infuscation in wings distinctly extending continuously or uninterruptedly, even if only diffusely, for some distance or much beyond level of middle cross vein in either the marginal cell (to at least halfway between middle cross vein and base of cubital fork) or in both marginal and first submarginal cells or even into first posterior cell, thus occupying a more extensive area, encroaching on or even enveloping spots on cross veins and leaving a distinctly less extensive hyaline apical and posterior part. . . . 9
- (b) Basal and anterior infuscation or infusion either not extending much beyond level of base of discoidal cell in which case a clear gap of variable extent between it and the infusion on middle cross vein (discal spot) or on middle cross vein and the basal parts of cells beyond it is evident, or infuscation extends continuously only for a very short distance beyond level of middle cross vein into marginal and first submarginal cells, less than halfway between middle cross vein and cubital fork, even though infusions or spots are present on cross veins in clearer or hyaline apical and hinder part. . . . 31
9. (a) Wings uniformly and diffusely dark reddish brownish, brownish or chocolate-brownish in basal and costal parts, the infuscation imperceptibly passing into the less tinged or more greyish apical and hinder part, there being no clear spots in anterior darker part and the spot-like infusions on cross veins indistinct or faint; middle cross vein distinctly much before middle of discoidal cell; antennae with joint 2 subglobular or sub-barrel-shaped and bulbular part of 3 not flattened or discoidal, more onion- or bulb-shaped, its basal margin not prominently rim-like. . . . 10
- (b) Wings with the infuscation or pattern more sharply defined from clearer or hyaline apical and hinder part, sometimes with clearer or more translucent areas or spots in anterior infuscated part, with the spots on cross veins, if present, usually more conspicuous and well defined; middle cross vein usually at about or at least nearer middle of discoidal cell; antennae with joint 2 usually more flattened, disc-shaped or lens-shaped and bulbular part of 3 discoidal, its basal margin more conspicuously and prominently rim-like and, if these antennal characters do not conform, infuscation in wings is at least well marked off. . . . 11
10. (a) Larger form, about 11-11½ mm. long, with a wing-length of about 12-12½ mm.; darker part in wings more chocolate or reddish brownish; middle cross vein at more than basal third of discoidal cell; second vein originating at right angles and provided with a long stump at bend; alula and axillary lobe tending to be broader, the latter much broader than anal cell; third posterior cell very much shorter than discoidal cell; antennae much wider apart, distance between them very much more than length of joint 1; hair in collar and on sides of thorax above with apparently more whitish ones intermixed; femora reddish brownish, tibiae and tarsi yellowish. . . . ♂ *phaeopteralis* n. sp. (p. 396)

- (b) Smaller form, about 7 mm. long, with a wing-length of about $7\frac{1}{2}$ mm.; darker part in wings dark blackish brown; middle cross vein at about basal third of discoidal cell; second vein originating slightly obliquely, without a stump; alula and axillary lobe tending to be narrower, the latter about as broad as anal cell; third posterior cell only a little shorter than discoidal cell; antennae closer together, space between them about equal to length of joint 1; hairs in collar and sides of thorax above with fewer pale ones intermixed; femora darker and tibiae brownish. . . . ♀ *furvus* n. sp. (p. 398)
11. (a) Infuscation in wings more extensive, occupying more or less basal and anterior part, extending obliquely and irregularly apically from near middle or near apex of axillary lobe to or near to base of upper cubital branch and from there across to apical part of costal cell, the area or basal part of first submarginal cell a little in front of base of upper cubital branch less extensively clear, but always more or less more extensively infused; well-defined, conspicuous spots on all the cross veins along hinder border of infuscation; clearer or hyaline apical and hinder parts relatively less extensive. . . . 12
- (b) Infuscation less extensive, more confined to costal part, occupying a smaller basal and anterior part, extending obliquely apically from near base or middle of axillary lobe and anal cell straight or jaggedly across to or near apex of costal cell, the area of first submarginal and first posterior cells just in front of base of upper cubital branch more extensively clear or clear like rest of apical and hinder parts; spot at apex of discoidal cell wanting or the spots on cross veins faint or even wanting. . . . 27
12. (a) Wings normally long and narrower; entire axillary and anal cells not infuscated throughout and, apart from the basal spot, without distinct or extensive infuscation in basal part of fourth posterior cell and the infuscation also not occupying either the entire discoidal cell or greater part of it; discoidal cell longer, with only its lower vein curved or bent outwards and its apex more pointed; middle cross vein even if before middle of discoidal cell is still beyond level of base of third posterior cell; squamae whitish, white-fringed; knobs of halteres pale, whitish or yellowish to a variable extent; hairs on body above and below not entirely dark or black, usually with more numerous white or pale ones among black or dark ones either in collar, on pleurae or on venter to a variable extent; white or pale scaling on abdomen above usually more extensive or arranged on sides across most of the tergites or at least also on 1, 3 and 4 to a variable extent and those posteriorly in ♂♂ not elongate, brilliant silvery and arranged transversely; slender part of antennal joint 3 usually distinctly or much longer than broad base and its terminal joint longer, not very short or minute; tarsi only a little shorter than or subequal to or even longer than tibiae; apical angles of clasper-like basal parts of hypopygium in ♂♂ usually produced prong-like to a variable extent. . . . 13
- (b) Wings (pl. i, fig. 4 (♀)) relatively much shorter, very broad; entire axillary and anal cells infuscated dark blackish brown like rest of basal and costal part, the infuscation also extending into basal part of fourth posterior cell (more so in ♀) and also occupying entire discoidal cell (♀) or basal half and anterior apical part (♂); discoidal cell shortish, broad, dilated apically where both upper and lower veins are curved outwards and its apex more truncate; middle cross vein before middle of discoidal cell and about opposite level of basal bend of third posterior cell; squamae brown, brownish-fringed; halteres and their knobs entirely brown; hairs on body above and below mainly black, with much fewer whitish ones intermixed in collar and on pleurae, only tuft at base of abdomen partly conspicuously white; scaling on abdomen black, with only some white scaling on sides across hind margin of tergite 2 and in ♂ posteriorly where they are long, very brilliantly silvery and transversely arranged; slender part of antennal joint 3 only about as long as or distinctly shorter than broad globular base, its terminal joint very small, almost vestigial; tarsi much or markedly shorter than tibiae; apical angles of clasper-like basal parts of hypopygium in ♂ not produced prong-like. . . . ♂ ♀ *eurypterus* n. sp. (p. 412)
13. (a) Basal and anterior infuscation in wings not sharply or clearly defined from clearer apical and hinder part, the transition more diffuse or hazy and either without a distinct clear area before base of upper cubital branch or beyond middle cross vein in first posterior cell and usually with the basal part or basal half of discoidal cell also more

- infused; spots on cross veins tending to be more diffuse, fainter and less well defined; upper cubital branch tending to be not so deeply bent backward and to be less wavy; terminal joint of antennal joint 3 relatively longer, only a little shorter than or even almost as long as slender part; hairs and bristles on body less developed and those on sides of abdomen relatively sparser, less dense and tuft-like; plumula whitish or pale, not entirely black. 14
- (b) Basal and anterior infuscation distinctly more sharply defined or delimited from clearer or more hyaline apical and hinder part, extending from middle or beyond middle of axillary lobe more or less irregularly and obliquely across towards apex of costal cell, usually with conspicuous and a more distinct clear area in infused base of first posterior cell beyond middle cross vein and more often also before base of upper cubital branch and with the base or basal half of discoidal cell less extensively infused; spots on cross veins more distinct, more defined or larger; upper cubital branch usually more deeply bent backwards and more markedly wavy; terminal joint of antennal joint 3 much shorter, usually very much shorter than slender part; hairs and bristles on body more conspicuously developed, those on sides of abdomen distinctly denser, more shaggy and tuft-like; plumula dark or black or with more dark hairs. 18
14. (a) Broad base of antennal joint 3 much broader than joint 2, more discoidal; joint 2 distinctly shorter and broader, more flattened saucer-like or lens- or disc-shaped, much more than twice as broad as long; infuscation in wings (pl. i, fig. 3) slightly darker, slightly more sharply delimited from clearer parts and with the spots on cross veins darker, more intense; upper cubital branch not only roundly and fairly deeply bent backwards, but more wavy beyond bend. 15
- (b) Broad base of antennal joint 3 smaller, only a little broader than joint 2, more bulb-shaped; joint 2 relatively longer, more bead- or sub-barrel-shaped, only about twice or even less than twice as broad as long; infuscation in wings slightly paler brownish, more diffuse, grading more imperceptibly into the clearer part and with the spots on cross veins fainter, less intense; upper cubital branch, though somewhat subangularly bent backwards, straighter beyond bend. 16
15. (a) Hair on prosternal part and propleurae and hair-like scaling on pleurae darker or with much fewer pale elements intermixed; plumula composed of pale hairs and some black ones intermixed. ♀ *cunctator* n. sp. (p. 398)
- (b) Hairs and scale-like hairs on these parts predominantly whitish or pale; plumula entirely pale or whitish. var. of ♀ *cunctator* n. sp. (p. 399)
16. (a) Infuscation in wings less extensive, more uniform, without distinct clearer spot-like areas before and beyond middle cross vein, less extensive in anal cell and axillary lobe, not extending beyond middle of former and base of fourth posterior cell not infused; end of second vein less recurved and upper cubital branch less deeply bent backwards; hair on body, especially sides of abdomen, less dense and shorter and those in collar, on humeral tubercle and on mesopleural part with more pale or whitish ones intermixed; space across base of face less bare, with more hairs; scaling on venter pale; terminal joint of antennal joint 3 longer, only a little or scarcely shorter than slender part; femora paler, more sienna-brownish and tibiae paler yellowish; front femora with feeble, shorter and sparser or scarcely any hairs below; spines on femora and spicules on tibiae less developed, fewer and sparser; smaller forms, about $5\frac{1}{2}$ –7 mm. long, with a wing-length of about 6 – $7\frac{1}{2}$ mm. 17
- (b) Infuscation in wings more extensive and in basal part occupying most of anal and axillary cells to much beyond middle cross vein and even extending into base of fourth posterior cell, not so uniform, with clearer or less-tinged areas just before and just beyond middle cross vein; end of second vein distinctly more recurved and upper cubital branch more subangularly bent backwards; hair on body, especially sides of abdomen, distinctly denser and longer and with much fewer whitish ones intermixed in collar, on humerus and mesopleural parts; space across base of face bare, without any hairs; scaling on venter as well as that on abdomen above (excepting only white ones) mainly dark or black; terminal joint of antennal joint 3 shorter, distinctly much shorter than slender part; femora darker or black and tibiae more reddish brownish;

front femora (in ♂ at least) with longer and denser fine hairs below; spines on femora and spicules on tibiae distinctly more developed and more numerous; larger form, more than 7 mm. long and with a wing-length of more than $7\frac{1}{2}$ mm.

. ♂ *namaënsis* n. sp. (p. 401)

17. (a) Infusion in wings not present in greater part of axillary lobe or in at least apical half of anal cell; middle cross vein distinctly a little beyond middle of discoidal cell; second vein originating distinctly a little before middle cross vein at about or a little less than length of latter; hairs on propleurae, prosternal part and coxae and hair-like scaling on pleurae entirely or mainly brownish or chocolate-brownish; bands of white scaling across hind margins of tergites 2 and 3 very broadly interrupted discally.

. ♂ ♀ *munroi* n. sp. (p. 399)

- (b) Infusion occupying also greater part of axillary and anal cells; middle cross vein at about middle of discoidal cell; second vein originating opposite or very near middle cross vein; hairs and hair-like scales on these parts predominantly pale or with more numerous pale ones; bands of white scales across hind margins of tergites 2 and 3 scarcely or only narrowly interrupted discally.

. ♀ *munroi* var. *willowmorensis* n. (p. 401)

18. (a) Infuscation in wings slightly more diffuse and extensive, either occupying the basal and anterior part from slightly beyond middle of axillary lobe along lower vein of discoidal cell to basal cross vein of second posterior cell and across first posterior cell, base of upper cubital branch (rarely not coalescing with the latter) to apex of costal cell, the entire discoidal cell thus more or less infused, or infusion occupies basal and anterior two-thirds from apex of anal cell arcuately across fourth and third posterior cells, basal vein of second posterior cell and base of upper cubital branch to near apex of costal cell; spots on cross veins in these forms thus lying along or on hinder margin of infuscation. 19

- (b) Infuscation in wings less extensive, occupying basal and anterior parts from about middle of axillary lobe (rarely from near apex) irregularly and obliquely across base of fourth posterior cell, middle cross vein, sub-basal part of first posterior cell towards apex of costal cell, the greater part or apical half of discoidal cell and area in front of basal spot on upper cubital branch being always clear or hyaline and the clear spot-like area at base of first posterior cell larger and more conspicuous; spots, or at least most of them, on cross veins in middle of wings separated from border of infuscation. 21

19. (a) Wings without any spot on lower vein of discoidal cell and the three spots on cross veins along hind border of infuscation slightly larger or more distinct; clear spot at base of first posterior cell more distinct or large and conspicuous; hair in propleural tuft, on mesosternal part, anterior coxae and venter with more black ones or entirely dark or black. 20

- (b) Wings with a distinct spot on lower vein of discoidal cell and with the three other spots on cross veins along hind border of infuscation slightly smaller; clear spot at base of first posterior cell small, indistinct, or only indicated; hair on humeral part, in propleural tuft, on prosternal part and venter with more white ones or entirely whitish. ♀ *aridicolus* n. sp. (p. 403)

20. (a) Infuscation in wings (pl. i, fig. 5) appearing slightly more extensive, extending to base of upper cubital branch, thus enclosing spot on this vein and without any clear spot in front of this spot; discoidal cell also infused for the greater part; middle cross vein much before middle of discoidal cell; tuft above front coxae and on prosternal part composed of both dark and white hairs, the latter more numerous; hair-like scaling on pleurae pale; femora darker and tibiae yellowish brownish. ♀ *xerozous* n. sp. (p. 402)

- (b) Infuscation in wings (cf. pl. i, fig. 7) less extensive, either not reaching spot at base of upper cubital branch or leaving a distinct clear gap or area in front of this spot; hinder or apical part of discoidal cell tending to be clear and with a small round clear area in its basal part in front of base of third posterior cell; middle cross vein much nearer middle or at middle of discoidal cell; tuft above front coxae and hairs on front coxae

and all hairs and scales on pleurae dark brownish to mauvish brown; femora dark reddish brown or piceous reddish and tibiae more yellowish reddish.

- ♂ *diffusus* f. *fuscopurpuratus* n. (p. 408)
21. (a) White scaling across hind margins on sides of tergites usually extending right round to ventral part in between black tufts; propleurae, pleurae, prosternal part, front coxae and extreme sides of tergites below usually with distinctly more pale hairs and hair-like scales; scaling on venter mainly whitish; hind margins of sternites and in ♂ sometimes those of posterior tergites more broadly and more conspicuously yellowish or yellowish brownish; cross veins in hyaline part of wings with 3 or 4 constant spots, one at base of third posterior cell, one either present or absent at bend on lower vein of discoidal cell, one at apex of latter and one at base of upper cubital branch. 22
- (b) White scaling across hind margins on sides of tergites not or scarcely extending right round to ventral part; propleurae, pleurae and other parts mentioned above with entirely or mainly dark or black or usually with fewer pale hairs and hair-like scales and, if with much pale hair, other characters at least conform; scaling on venter usually darker and, if pale, propleural parts with more dark hairs; hind margins of sternites and posterior tergites not or only very narrowly or obscurely yellowish or yellowish brownish; cross veins in hyaline part with only 3 constant and distinct spots, the one on lower vein of discoidal cell not normally or constantly present. 24
22. (a) Hair on propleurae, prosternal part and front coxae with more dark or black ones intermixed, without some reddish golden ones on front coxae; hairs on venter predominantly black or very dark or only with pale tips; cross veins in hyaline part of wings more constantly with 4 spots. 23
- (b) Hair on these parts entirely or mainly whitish or pale or with more numerous pale ones, usually with some reddish golden ones on front coxae; hairs on venter gleaming reddish golden in certain lights; cross veins in hyaline part of wings (cf. pl. i, fig. 7) more constantly with only 3 spots. ♂ ♀ *diffusus* f. *pallidulus* n. (p. 406)
23. (a) Hairs on venter dark or black; pale scaling on abdomen above, other than white ones, duller, more greyish whitish or straw-coloured; wings (pl. i, fig. 6) more constantly with 4 spots on cross veins in hyaline part; hind margins of sternites and in ♂ of posterior tergites more broadly yellowish or yellowish brownish. ♂ ♀ *tetraspilus* n. sp. (p. 410)
- (b) Hairs on venter paler, usually pale-tipped; pale scaling on abdomen above, other than white ones, more ochreous yellowish or orange yellowish; wings sometimes with spot on lower vein of discoidal cell indistinct or wanting; hind margins of sternites and those of posterior tergites in ♂ not or scarcely yellowish. ♂ ♀ *diffusus* f. *hybridus* n. (p. 407)
24. (a) Infuscation in wings also occupying greater part or basal two-thirds or at least basal half of discoidal cell and sometimes also basal part of fourth posterior cell; spot at base of third posterior cell confluent with main infuscation; legs darker. 25
- (b) Infuscation extending only from about or a little beyond middle of axillary lobe obliquely across base of fourth posterior cell to a little distance in front of base of upper cubital branch in first posterior cell and then more or less straight across to near apex of costal cell, clouding only base of discoidal cell, the latter thus almost entirely hyaline or clear; spot at base of third posterior cell isolated; legs usually paler, the apical and lower parts of femora at least pale reddish brownish. 26
25. (a) Infuscation in wings (cf. pl. i, fig. 7) extending from about middle or only a little beyond middle of axillary lobe obliquely across to apex of costal cell, the basal and upper parts or even greater part of discoidal cell included; spot at apex of discoidal cell confluent with main infuscation; lower vein of discoidal cell without a spot; hair in collar, on humerus and propleural part mainly dark mauvish brownish, with distinctly much fewer pale ones; antennae less widely apart, space between them less than twice

length of joint 1; smaller form, about 7-8 mm. long, with a wing-length of about 9 mm. ♂ *diffusus* f. *fuscopurpuratus* n. (p. 408)

- (b) Infuscation in wings (pl. i, fig. 8) extending from very near or from apex of axillary lobe obliquely across to near apex of costal cell, the basal half only or slightly more than basal half of discoidal cell included; spot at apex of discoidal cell not or scarcely confluent with main infuscation; lower vein of discoidal cell sometimes with a minute spot; hair in collar, on humerus and propleural part with more white ones; antennae separated by about twice length of joint 1; larger form, about 11½ mm. long, with a wing-length of about 13½ mm. ♀ *rhodesiënsis* n. sp. (p. 411)

26. (a) Infuscation in wings (pl. i, fig. 7) sharply delimited from hyaline part and darker; spots on cross veins conspicuous and sharply defined; upper cubital branch distinctly more sinuous; propleurae, prosternal part and venter with darker or mainly black hair or with much black hair intermixed; white scaling across hind margins of tergites 2 and 3 only on sides or very broadly interrupted discally; venter without pale scaling; integument of body darker; terminal joint of antennal joint 3 relatively shorter; femora darker, more blackish or piceous brown and with more numerous spines below; larger form, about 7½-11½ mm. long, with a wing-length of about 9-13½ mm. ♂ ♀ *diffusus* Wied. (p. 404)

- (b) Infuscation in wings more diffuse, grading into clearer part; spots fainter and less conspicuous; upper cubital branch tending to be less sinuous; propleurae, prosternal part and venter with more chocolate brownish hair; white scaling across hind margins of tergites 2 and 3 in ♂ at least more narrowly interrupted discally; venter with much pale scaling; integument paler brownish; terminal joint of antennal joint 3 relatively longer; legs paler, sienna-brownish and with fewer spines below; much smaller form, about 4½-6 mm. long, with a wing-length of only about 5-7½ mm. ♂ ♀ *diffusus* f. *suffusipennis* n. (p. 407)

27. (a) Antennal joint 2 flattened, lens-shaped or disc-shaped or at least much broader than long; broad base of joint 3 more discoidal, its basal margin projecting rim-like; infuscation in wings extending from about middle or just before middle of axillary lobe across middle of anal cell, base of fourth posterior cell and obliquely across large spot on middle cross vein towards apex of costal cell; basal part of first submarginal cell not or less extensively infuscated, its infusion falling far short of that in marginal cell; spot-like infuscations present on basal cross veins of third posterior and second submarginal cells and sometimes also at apex of discoidal cell; second vein originating at right angles opposite or almost opposite middle cross vein and with a distinct longish stump at bend; upper cubital branch distinctly more sinuous, more deeply bent backwards and more often with a stump at base; hair on propleurae and prosternal part and hair-like scales on pleurae and to a certain extent also scaling on sides of thorax above mainly dull greyish yellowish or straw-coloured yellowish or with more dark hairs on pleurae; scaling on abdomen above, other than white ones, more often predominantly yellowish or dull ochreous yellowish; long hairs on sides of abdomen less dense or shaggy and without white ones intermixed; hypopygium of ♂ with an apical prong or process to the clasper-like basal parts. 28

- (b) Antennal joint 2 longer, subglobular or barrel-shaped; broad base of joint 3 more bulb-like or onion-shaped; dark blackish brown infuscation in wings (pl. i, fig. 17) extending from base of axillary lobe across basal part of anal cell, then zigzag obliquely across basal cross vein of fourth posterior cell, middle cross vein and then to midway between the latter and cubital fork and from there across to costal cell; basal part of first submarginal cell more extensively infuscated, its infusion extending to about level of that in marginal cell; cross veins in hyaline part without any distinct spots; second vein originating obtusely a little before middle cross vein, without a distinct or longish stump; upper cubital branch distinctly less sinuous, not deeply bent backwards; hair on propleural and prosternal parts and hair-like scales on pleurae and scaling on sides of thorax above mainly whitish or greyish or with more whitish ones; scaling on abdomen above, other than white ones, darker, more blackish or with more black ones; long hairs on sides of abdomen denser and shaggy and with white ones or whitish tufts

especially on sides of tergite 2 and below the black ones on sides; hypopygium of ♂ with the apical part of clasper-like basal parts not produced.

- ♂ ♀ *trisinuatus* n. sp. (p. 449)
28. (a) Infusion in wings extending almost straight and obliquely across from before or just before middle of axillary lobe to a point either much nearer end of costal cell or nearly opposite level of base of upper cubital branch; a distinct or conspicuous clear area, spot or indentation just before spot on middle cross vein not present or scarcely indicated; cross veins in hyaline part with only 1 or 2 constant, more diffuse, spot-like infuscations or indications, on either base of third posterior cell or on base of latter and that of upper cubital branch; broadened base of antennal joint 3 smaller and less enlarged, its slender styler part much longer than base; scaling on abdomen above with less extensive dark ones and the white ones longer, less fan-shaped. 29
- (b) Infusion in wings extending more irregularly or jaggedly across from before or at about or even slightly beyond middle of axillary lobe to a point on costal cell much farther away from end of latter or much before level of cubital fork; a clear area, indentation or gap just before large spot on middle cross vein distinctly evident or conspicuous, sometimes even extending across to second vein, resulting in the large discal spot being conspicuously hook-like or peninsula-like; cross veins in hyaline part with either 1, 2 or 3 more rounded or more conspicuous spots; broad base of antennal joint 3 larger or more conspicuously enlarged, its slender part relatively shorter, subequal in length to or even shorter than broad base; scaling on abdomen above with more extensive dark ones and the white ones distinctly shorter, broadish and more fan-shaped. 30
29. (a) Infuscation in wings extending obliquely across from just before or about or even slightly beyond middle of axillary and anal cells apically to a point far short of end of costal cell but to about opposite level of cubital fork, distinctly more extensively present in basal part of first submarginal cell and its apex in marginal cell more oblique or at least less truncate; spot-like infusions on both base of third posterior and second submarginal cells more distinct; base of latter bent more distinctly at right angles and usually with a stump; antennae more widely apart, space between them usually more than length of joint 1; antennal joint 2 slightly flatter, more saucer-like or lens- or disc-shaped; slender part of joint 3 relatively shorter, its terminal joint longer, not much or only a little shorter than slender part; white scaling on abdomen posteriorly distinctly more brilliant or silvery; hairs and hair-like scales on pleurae on the whole darker or with more dark ones. ♂ ♀ *pusillus* Wied. (p. 413)
- (b) Infuscation extending from before middle of anal and axillary cells apically to a point near end of costal cell which falls far short of level of cubital fork, absent or scarcely evident in basal part of first submarginal cell and its apex in marginal cell more truncate; spot-like infusion at base of third posterior cell fainter or scarcely evident and that at base of second submarginal cell absent; base of latter not or less bent at right angles and without a stump; antennae in ♂ at least distinctly much closer together, space between them scarcely or only a little broader than length of joint 1; joint 2 slightly longer, distinctly less lens-shaped; slender part of joint 3 relatively longer, its terminal joint, especially in ♂, much shorter, very much shorter than slender part; white scaling on abdomen posteriorly duller whitish; hairs and scales on pleurae with more whitish ones. ♂ ♀ *simillimus* n. sp. (p. 415)
30. (a) Wings (pl. i, fig. 9) with 2 or 3 spots in hyaline part, one at base of third posterior cell, one at base of upper cubital branch and sometimes also one at apex of discoidal cell; infuscated part without distinct and constant small yellowish or whitish spots in basal part of costal cell, at base of marginal cell and at same level in first basal cell; margin of infuscation appearing irregular, not markedly jagged; discal spot more rounded; infuscation at base of discoidal cell tending to be less extensive and more diffuse; first posterior cell more narrowed apically; sides of frons anteriorly, sides of face and below antennae without any conspicuous silvery pruinescence; hair on abdomen above and sides slightly longer and denser and that on basal part or half of venter pale or whitish; antennal joint 3 with the base normally discoidal or bulb-like, the slender part much longer than base and its terminal joint not very short or minute; prongs of hypopygium of ♂ more slender and longer. ♂ ♀ *caffer* n. sp. (p. 416)

- (b) Wings with only one distinct spot in hyaline part at base of third posterior cell; infuscated part with 4 distinct and constant subopaque yellowish white spots at base of costal cell, at base of marginal cell, at the same level in first basal cell and at apex of second basal cell; margin of infuscation appearing more jagged; discal spot conspicuously subquadrate; infuscation at base of discoidal cell slightly more extensive and truncate; first posterior cell tending to distinctly more parallel-sided and less or scarcely narrowed apically; sides of frons anteriorly, sides of face and parts below antennae with distinctly more conspicuously shining silvery pruinescence; hair on abdomen slightly shorter and less dense and that on venter dark or blackish; antennal joint 3 with the broad base relatively broader or markedly subglobular, the slender part much shorter than globular base and its terminal joint very short; prongs of ♂-hypopygium shorter, blunter and more rounded. ♂ ♀ *sticticalis* n. sp. (p. 420)
31. (a) Anterior and basal infuscation in wings uniformly and diffusely reddish brownish or chocolate-brownish, this infuscation not sharply delimited, but imperceptibly passing into less-tinged or more smoky greyish part; spot-like infusions on cross veins in less infuscated part indistinct or faint; middle cross vein distinctly very much before middle of discoidal cell; antennal joint 2 subglobular or sub-barrel-shaped; bulbular part of joint 3 more bulb-like, not flattened or discoidal, its basal margin not prominently rim-like; hairs on pleurae, coxae and venter mainly dark chocolate-brownish; legs reddish brownish. ♂ *phaeopteralis* n. sp. (p. 396)
- (b) Anterior and basal infuscation in wings more sharply delimited and, if tending to be diffuse, conspicuous spots are present and following characters also evident; spot-like infusions, on cross veins, if present, more conspicuous; middle cross vein at about or at least nearer or even slightly beyond middle of discoidal cell and, if much before middle, other characters at least conform; antennal joint 2 usually more flattened, lens- or disc-shaped; bulbular part of joint 3 more flattened or discoidal, its basal margin more conspicuously rim-like; hairs on pleurae and body below not dark chocolate, more black or with much pale hair and, if dark, the other characters conform; legs with the femora usually much darker or black. 32
32. (a) Basal wing-pattern sharply and dimidiately delimited, uniformly dark blackish brown, extending from apex or near apex of axillary lobe obliquely across at least the basal third of fourth posterior cell, across nearly the basal half of discoidal cell, middle cross vein to costal cell, its margin irregularly straight, without a distinct or conspicuous clear indentation or gap in front of discal spot on middle cross vein region, the latter spot not projecting conspicuously hook-like or peninsula-like; cross veins in hyaline part without any spots or spot-like infusions. 33
- (b) Basal wing-pattern less sharply or dimidiately defined and, if sharply or dimidiately delimited, extending obliquely across from about middle or from some distance away from apex of axillary lobe across extreme base of fourth posterior cell and only basal third or much less of discoidal cell, across middle cross vein to costal cell, its margin more irregular or jagged, missing basal cross vein of third posterior cell and always with a distinct, often very deep, clear indentation or gap (sometimes even extending right across to second or even first main veins), in front of discal spot, the latter spot thus either projecting conspicuously hook-like or peninsula-like or sometimes even isolated; some cross veins in hyaline part usually with spots or indications of spots. 34
33. (a) Antennae slightly nearer together, scarcely or not quite twice length of joint 1; joint 2 shorter, about twice as broad as long; base of joint 3 less flattened, bulb-like, its slender part thicker and tapering, its terminal joint very short, minute; interocular space in front of ocellar tubercle in ♀ only about 3 times width of latter; greater part of tuft on sides of tergite 1 white, only some hairs in hinder part black; bristly hairs on last sternite short, not dense and tuft-like; white scales on last two tergites finer and those across hind margin of tergite 6 narrower and more slender. ♀ *dimidiatipennis* n. sp. (p. 423)
- (b) Antennae slightly farther apart, quite twice length of joint 1; joint 2 relatively longer, less than twice as broad as long; base of 3 distinctly more flattened and discoidal, its

slender part more slender, not markedly tapering, its terminal joint distinctly longer, only a little less than half length of slender part; interocular space in ♀ about $3\frac{1}{2}$ to $3\frac{3}{4}$ times width of tubercle; tuft on sides of tergite 1 with only the upper half white, the lower half black; bristly hairs on last sternite longer, denser and tuft-like; white scales on last two tergites relatively broader, those across hind margin of 6 on sides distinctly broader and cuneiform. . . . ♀ *mimetus* n. sp. (p. 424)

34. (a) Infuscation in wings, excluding infuscated costal cell, always continuous in marginal cell along costal part from base to where it ends apically; clearer or hyaline indentation or gap in front of infusion on middle cross vein not reaching costal cell and not cutting off or isolating the large discal spot, the latter thus projecting hook-like and pattern thus in form of a basal and anterior infuscation which is joined on to discal spot; cross veins in hyaline part either without any or with never more than 3 spots. . . . 35
- (b) Infuscation in wings, apart from the costal cell, not continuous along costal part in marginal cell from base to where it ends apically; clearer or hyaline indentation or gap in front on infusion on middle cross vein extending right across and reaching costal cell (or sometimes extending more or less to middle of basal part of marginal cell) and so completely or almost entirely cutting off and isolating the large discal spot, the latter thus forming an isolated medial spot and pattern thus in form of a basal infuscation up to level of apex of second basal cell and 1 to 4 (or even 5) spots in hyaline part. . . . 46
35. (a) Larger forms, about 8–13 mm. long, with a wing-length of about 10–14½ mm.; hair on body distinctly very much denser, longer, more shaggy, that on sides of abdomen conspicuously dense, long and shaggy; tuft on sides of tergite 1 with much denser and more numerous black hairs in addition to white or pale ones and those on sides below being also mainly black or dark; scaling on venter mainly or entirely black and that on abdomen above, other than white ones, also mainly dark; spines on femora and spicules on tibiae distinctly more numerous, denser, more strongly developed and scales on legs also much denser, more strongly developed; upper cubital branch in wings more deeply bent backwards and more sinuous. . . . 36
- (b) Smaller forms, usually less than 9 mm. long, with a wing-length of less than 10 mm.; hair on body distinctly less dense, relatively shorter and less shaggy, that on sides of abdomen, though sometimes appearing dense, distinctly less dense in comparison, shorter and less shaggy; tuft on sides of tergite 1 mainly white or with fewer black hairs and then only across hind margin; scaling on venter not entirely dark, with much pale or whitish scaling on abdomen above apart from white ones across hind margins and with some or much pale or yellowish ones in addition to black ones; spines and spicules on legs less strongly developed, less numerous and sparser and the scales also shorter; upper cubital branch usually less deeply bent backwards and less wavy and, if very sinuous, other characters do not differ. . . . 37
36. (a) Dark blackish brown infuscation in wings more uniform, more extensive and more distinctly dimidiate, occupying almost the basal half of wings, extending from near or very near apex of axillary lobe obliquely across towards apical part of costal cell, including greater part of axillary and anal cells, basal part of fourth posterior cell and at least basal third of discoidal cell, its margin almost straight, except for hook-like infuscation on middle cross vein; clear gap before hook-like discal spot less extensive, shorter, not extending across into marginal or costal cell; cross veins in hyaline part with only two equally conspicuous spots, on basal cross veins of third posterior and second submarginal cells respectively; tergite 3 without any or with much fewer white scales on sides; apical prongs of ♂-hypopygium very long and narrow. . . . ♂ ♀ *biflexus* Lw. (p. 425)
- (b) Dark blackish brown infuscation in wings less uniform, less extensive and less dimidiate, more broken up along hind border, extending from about middle of axillary and anal cells obliquely across, including only about or a little more than half of axillary and anal cells and not the basal part of fourth posterior cell (excluding spot), less than basal third of discoidal cell, the hind margin of this infuscation much broken up by a clear

indentation in anal cell and another before large discal spot on middle cross vein; clear gap before latter distinctly more extensive, longer, extending across, sometimes broadly so, into marginal cell or even to costal cell, sometimes even isolating discal spot; cross veins in hyaline part with at least 3 spots, on basal cross veins of third and second posterior cells and at base of second submarginal cell; tergite 3 usually with a conspicuous patch of white scales across hind margin on sides and sometimes even with some across discal part; apical prongs of hypopygium very much shorter and blunter. ♂ ♀ *bifarius* n. sp. (p. 429)

37. (a) Infuscation in wings in form of a more uniform brownish or dark blackish brown infusion in anterior basal part, extending from before or about middle or even a little beyond middle of axillary lobe obliquely across to costal cell just a little beyond infusion on middle cross vein which is apparent as a conspicuous hook-like projection; cross veins in hyaline part without any or with 2 or 3 darker spots; upper cubital branch usually more deeply or sharply bent backwards and distinctly more wavy; pale scaling, if present on head, thorax above and abdomen above, other than white ones on latter, more greyish whitish or dull yellowish greyish; white scaling on abdomen posteriorly more conspicuously developed in both sexes. 38
- (b) Infuscation in wings (pl. i, figs. 13 and 15) in the form of a basal more yellowish brownish infusion which is not very uniform, more diffuse, extending from slightly beyond middle of axillary lobe across basal part of discoidal cell, middle cross vein to costal cell, the region in front of dark discal spot less tinged; cross veins in hyaline part with 2 fainter or more diffuse spots, on basal cross veins of third posterior and second submarginal cells respectively and usually another one (sometimes faint) also on apical vein of discoidal cell; upper cubital branch not or distinctly less sinuous, only bent backwards; scaling on head, thorax and abdomen, other than white ones on latter, deep golden yellowish to ochreous or even orange yellowish; whitish scaling on abdomen posteriorly less developed in ♀ at least. ♂ ♀ (especially ♀) *consobrinus* n. sp. var. *suffusipunctis* n. (p. 434)
38. (a) Infuscation in wings extending apicalwards in marginal cell to almost level of apex of false vein in costal cell and for a distance beyond discal spot which is about or nearly half distance between the latter and cubital fork. 39
- (b) Infuscation in wings extending apicalwards in marginal cell to a point falling far short of level of apex of false vein and scarcely beyond or for only a very short distance beyond discal spot which is considerably shorter than halfway between the latter spot and cubital fork. 40
39. (a) Wings (pl. i, fig. 9) with 2 or 3 spots in hyaline part, at base of third posterior cell, base of upper cubital branch and sometimes also at apex of discoidal cell respectively; the infuscation without distinct small yellowish white spots basally; its margin less jagged; discal spot more rounded; first posterior cell more narrowed apically; sides of frons anteriorly and sides of face without any conspicuous silvery pruinescence; hairs on body above and on sides of abdomen relatively longer and denser. ♂ ♀ *caffer* n. sp. (p. 416)
- (b) Wings with only 1 spot in hyaline part at base of third posterior cell; the infuscation with 4 distinct subopaquely yellowish whitish spots: in basal part of costal cell, at base of marginal cell, at about same level in first basal cell and in apical part of second basal cell respectively; margin of infuscation appearing more jagged; discal spot conspicuously more quadrate or subquadrate; first posterior cell usually less narrowed apically and more parallel-sided; sides of frons anteriorly and sides of face distinctly more conspicuously silvery pruinose; hairs on body above, especially sides of abdomen, relatively shorter and less dense. ♂ ♀ *sticticalis* n. sp. (p. 421)
40. (a) Discal spot or patch in wings small or smaller, more rounded or oblong, projecting peninsula-like; spot at base of upper cubital branch usually absent but if present it is very indistinct and there are no other spots in hyaline part; clear gap or indentation before discal spot smaller and shorter and, if broad and broadly extending across to

- costal cell, base of upper cubital branch without a spot or only a small one; middle cross vein tending to be at about or slightly before middle of discoidal cell. 41
- (b) Discal spot in wings (pl. i, fig. 10) very large and triangular; spot at base of upper cubital branch usually conspicuously large, even larger than the other two distinct spots on cross veins in hyaline part (at base of third posterior cell and apex of discoidal cell respectively); clear gap before large discal spot larger or broader, more extensive, often extending broadly across to costal cell; middle cross vein tending to be very slightly beyond middle of discoidal cell. ♂ ♀ *triatomus* n. sp. (p. 418)
41. (a) Scaling on abdomen above, other than transverse bands of white ones, entirely black; white scales on abdomen, especially posteriorly, duller, more chalky or cretaceous whitish; infuscation in axillary lobe more extensive, occupying almost entire or greater part of basal part, basal half or even more than basal half of lobe and infuscation in anal cell slightly more extensive, extending to a little beyond middle. 42
- (b) Scaling on abdomen above, other than white ones, not entirely black, but also with much yellowish, ochreous yellowish or brownish ones; white scales on abdomen, especially posteriorly, more pearly or even silvery whitish; infuscation in axillary lobe less extensive, tending to be confined to anterior basal part only and that in anal cell tending to be less extensive, extending only to just before middle or scarcely beyond. 44
42. (a) Basal cross veins of third posterior and second submarginal cells with distinct faint indications of spots or spot-like cloudiness or even with a distinct small spot on former; hairs on sides of tergite 1 entirely pale, without any or with much fewer dark or black ones on sides across hind margin; hairs at base of venter pale or with numerous pale ones; interocular space in ♂♂ at narrowest part in front of ocellar tubercle broader, about $2\frac{1}{2}$ to 3 times width of tubercle. 43
- (b) Basal cross veins of third posterior and second submarginal cells without any spots or cloudiness; hairs on sides of tergite 1 whitish, but with more numerous black ones across hind margin; hairs on entire venter dark or black; interocular space in front of ocellar tubercle in ♂ narrower, only about $2\frac{1}{2}$ times width of tubercle. certain ♂♂ of *doliops* n. sp. (p. 436)
43. (a) Smaller form, about 5 mm. long, with a wing-length of about $5\frac{1}{2}$ mm.; basal cross vein of third posterior cell with a more distinct spot-like infuscation which is more distinct than that at base of second submarginal cell; infuscation in wings not extending beyond discal spot in marginal cell or only for a very short distance, much shorter than length of discal spot; upper cubital branch less sinuous; slender part of antennal joint 3 very much shorter, scarcely or only a little longer than broad base, its terminal joint about half or a little more than half length of slender part; hairs on sides of tergite 1 sometimes with some black ones posteriorly; hairs on extreme sides of tergites below black; hind margins of tergites and sternites not or scarcely reddish even posteriorly; prongs of ♂-hypopygium narrower, more slender. ♂ ♀ *puncturellus* Hesse (p. 440)
- (b) Larger form, about 9 mm. long, with a wing-length of about 10 mm.; basal cross veins of both third posterior and second submarginal cells with more or less equally developed faint cloudiness; infuscation in wings extending beyond discal spot in marginal cell to a point about as far from spot as length of spot; upper cubital branch slightly more distinctly wavy; slender part of antennal joint 3 distinctly longer, nearly twice length of broad base, its terminal joint about half or less than half length of slender part; hairs on sides of tergite 1 entirely pale, those across hinder part sometimes more yellowish; hairs on extreme sides of tergites below tinted yellowish or fulvous; hind margins of tergites and sternites, especially posteriorly, more distinctly reddish; prongs of hypopygium broader and flatter. ♂ *doliops* n. sp. var. *fulviventris* n. (p. 439)
44. (a) Infuscation in wings (pl. i, fig. 14) extending in marginal cell for some distance beyond discal spot to at least length of latter where it ends abruptly or is truncated; first basal cell without any distinct or with a much fainter subopaque whitish spot or streak near base; clear gap before discal spot or hook on the whole less extensive, narrower

and more often shorter; hair on pleural parts, coxae and on greater part of venter dark or with fewer whitish ones; body above, apart from the usual white scales on thorax and transverse white ones on abdomen above, with fewer pale, yellowish or whitish ones. . . . 45

- (b) Infuscation in wings not extending in marginal cell beyond discal spot and, if (in ♀) extending a little beyond, this extension is shorter than length of discal spot; first basal cell with a distinct and conspicuous subopaquely whitish streak near base; clear gap before discal spot more extensive, broader and extending broadly into marginal cell; hair on pleurae, coxae and greater part of venter on the whole much paler, with more pale or whitish ones, especially on venter; body above with distinctly more pale scaling or even whitish ones in addition to yellowish ones, dark ones and the usual white ones on abdomen. . . . ♂ ♀ *eremobius* n. sp. (p. 441)
45. (a) Extension of wing-infuscation beyond discal spot in marginal cell at least as long as discal spot which itself is distinctly broader; sides of tergite 4 without or with less extensive white scaling; apical prongs of ♂-hypopygium broader and more flattened. . . . ♂ ♀ *doliops* n. sp. (p. 436)
- (b) Extension of infuscation beyond discal spot in marginal cell slightly shorter than length of spot which itself is narrower; sides of tergite 4 with slightly more extensive white scaling; apical prongs of hypopygium distinctly narrower, less flattened, more rod-like and curving inwards. . . . ♂ *leucurus* n. sp. (p. 439)
46. (a) Cross veins in hyaline part of wings with 3 or 4 distinct spots or fairly conspicuous infuscations in addition to the basal and costal infuscation and the large spot or infusion on middle cross vein, the wings thus appearing more spotted. . . . 47
- (b) Cross veins in hyaline part without any or with 1, 2 or 3 faint or smallish spots or spot-like cloudiness in addition to basal and anterior infuscation and the large well-defined discal spot or infusion on middle cross vein, the wings thus appearing less spotted. . . . 54
47. (a) Hairs and bristly hairs on body distinctly very much denser, longer, more shaggy in appearance and those on sides of abdomen markedly dense, longer and tufty; scaling on body, especially abdomen above and excluding white ones, distinctly longer, more hair-like or woolly in appearance; plumula dark; upper cubital branch in wings markedly and characteristically sinuous, deeply bent backwards, then bent fairly deeply forwards and then gradually curved to apex; spines on femora and spicules on tibiae more strongly developed, distinctly more numerous and denser; larger forms, about 9–13 mm. long, with a wing-length of about 10–14 mm. . . . 48
- (b) Hairs and bristly hairs on body relatively and distinctly less dense, shorter, sparser and less conspicuously dense and tufty on sides of abdomen; scaling on body and abdomen, other than white ones, distinctly shorter or finer hair-like, not woolly in appearance; plumula usually pale or white, rarely dark and, if so, other characters do not differ; upper cubital branch distinctly less sinuous in its course, less deeply bent backwards and more broadly V-shaped; spines on femora and spicules on tibiae less strongly developed, fewer and sparser; smaller forms, usually less than 9 mm. long, with a wing-length of less than 10 mm. . . . 49
48. (a) Infuscation in wings darker, blackish brown to dark blackish brown, more uniform. the clear parts more vitreous or glassy hyaline, with a tendency for large discal spot to be joined on to basal infuscation along marginal cell; cross veins in hyaline part with either 3 or sometimes 4 spots in addition to large discal spot; sides of frons and face narrowly silvery pruinose or with pruinose spots along margins of eyes; hair and hair-like scaling on pleurae, propleurae, prosternal part, coxae and venter predominantly very dark or black; hairs in lower hinder part of tuft on sides of tergite 1 black. . . . ♂ ♀ *bifarius* n. sp. (p. 429)
- (b) Infuscation in wings (pl. i, fig. 12) paler, more dull yellowish brownish to brownish, less uniform, more broken up, the middle parts of cells in infuscated part appearing less tinged or more clear, the hyaline parts more greyish, with a tendency for the parts of

marginal, first submarginal and first posterior cells between middle cross vein and cubital fork to be infused or patchily tinged to a variable extent and with the large discal spot separated from basal infuscation by a broad clear area; cross veins in clearer parts with 3 more diffuse or cloudy spots in addition to large discal spot (the wings on account of clear areas in infuscated part and diffuse spots appearing more spotted); sides of frons and face without distinct or conspicuous pruinose spots; hair and hair-like scaling on pleurae, propleurae, prosternal part, coxae and venter mainly pale, dull straw-coloured yellowish or greyish to deeper yellowish; hairs in both lower and upper parts of tuft on sides of tergite 1 white, only those across hind part black.

. ♂ ♀ *hessii* Wied. (p. 427)

49. (a) Wing-pattern (pl. i, figs. 10 and 11), other than infuscated costal cell, in form of a more or less sharply delimited basal infuscation, a large medial triangular spot or band on middle cross vein region (of which the broad base is usually continuous with infuscation in costal cell) and either 3 conspicuous dark spots on cross veins in hyaline part of which one at base of upper cubital branch is the largest, or with 2 spots on cross veins and apical infuscations in marginal and first submarginal cells; first basal cell usually without a whitish streak at base; scaling on venter either pale or whitish or if dark with spots or patches of white scales on sides. 50

- (b) Wing-pattern (cf. pl. i, fig. 13), other than infuscated costal cell, in form of a slightly more diffused basal infuscation, a smaller medial, more rounded, oblong or subquadrate spot on middle cross vein region which is either free from costal cell or if connected the junction is not so dark as spot itself and with the 3 spots on cross veins in hyaline part either distinctly more diffuse or much smaller and fainter and one at base of upper cubital branch the largest and without any infuscation in apical part of wings; first basal cell usually with a distinct whitish streak or spot at base and, if not, spots in wings at least as described; scaling on venter dark and usually sparse. 51

50. (a) Wings (pl. i, fig. 11) with the infuscated parts black; spot at base of upper cubital branch large and continued apically in marginal cell to border of wing as a curved broadish fascia and in addition to this a large spot is present apically in first submarginal cell; broad triangular infuscation on middle cross vein region sometimes coalescing with spot at base of third posterior cell to form an arcuate band; first basal cell without any distinct whitish streak; hyaline parts of wings glassy clear and very iridescent; discoidal cell tending to be very much narrowed apically; hair on propleurae, prosternal part, pleurae, coxae and venter entirely dark or black; plumula dark; scaling on thorax and especially on abdomen above (excluding normal white ones) entirely or mainly black; scaling on venter also mainly dark excepting only some patches of broadish white scales on sides of sternites. ♂ ♀ *candidulus* n. sp. (p. 421)

- (b) Wings (pl. i, fig. 10) with the infuscated parts dark brownish to blackish brown; spot at base of upper cubital branch isolated and smaller, not continued apically in marginal cell, there being no infuscations in apical parts of latter cell and first submarginal cell; broad triangular spot on middle cross vein not coalescing with spot at base of third posterior cell; first basal cell sometimes with an indication of a subapically whitish streak near base; hyaline parts of wings more vitreous and less strikingly iridescent; discoidal cell normally narrowed apically; hair on pleural and lower parts and on venter predominantly pale or with more pale ones intermixed; plumula pale; scaling on thorax above and especially abdomen above, other than white ones, with much dull yellowish, ochreous yellowish and greyish scaling; scaling on venter mainly whitish, the scales narrower or narrow. ♂ ♀ *triatomus* n. sp. (p. 418)

51. (a) Infuscation in wings in form of a dark brownish costal and basal infusion (the latter extending to level of spot at base of fourth posterior cell and more or less straight across to costal cell), an oblong or subquadrate spot on middle cross vein region reaching costal cell and 3 distinct and conspicuous, equally large spots on cross veins in hyaline part; upper cubital branch slightly less sharply bent backwards; scaling on abdomen above, other than white ones, mainly dark or black, without much or without any yellowish ones; pale scaling across hind margins of tergites, where present, entirely

white; hairs on abdomen above and on sides distinctly longer, relatively denser, especially in ♀; triangular prongs of hypopygium of ♂ slightly shorter.

- ♂ ♀ *triguttellus* n. sp. (p. 431)
- (b) Infuscation in wings with a similar basal and costal infuscation, but slightly more diffuse or sometimes more extensive, less sharply delimited and either with distinctly smaller spots or with more hazy or cloudy ones, or with the basal infusion, extending faintly and diffusely along veins in middle part of wings to a variable extent, thus connecting up with the spots on cross veins and rendering the wings more reticulate or spotted in appearance; upper cubital branch slightly more sharply bent backwards or even more sinuous; scaling on abdomen above, other than usual white ones, with much or even predominant yellowish, ochreous yellowish, golden to reddish orange golden ones; pale scaling across hind margins of tergites where present sometimes with more yellowish ones discally on posterior tergites in ♂♂ and even on sides in some ♀♀; triangular prongs of hypopygium relatively slightly longer. 52
52. (a) Infuscation in wings less diffuse, the basal infuscation, large discal spot and smaller spots on cross veins more sharply defined and isolated or separate and without any infusions along veins in middle of wings; hyaline parts of wings more vitreous or glassy; wings less spotted in appearance; upper cubital branch tending to be more sinuous; middle cross vein at about middle of discoidal cell. 53
- (b) Infuscation in wings (pl. i, figs. 13 and 15) distinctly more diffuse, the basal infuscation, large discal spot and diffuse or cloudy spots on cross veins less sharply defined; the infusion also extending faintly and diffusely along some of veins in middle of wings, connecting up with the discal spot and the two in middle; wings distinctly more spotted or reticulate in appearance; hyaline parts more greyish or even brownish; upper cubital branch distinctly less sinuous, only broadly V-shaped; middle cross vein slightly beyond middle of discoidal cell. ♂ ♀ *consobrinus* n. sp. var. *suffuspunctis* n. (p. 434)
53. (a) Hair on propleurae, prosternal part and coxae and hair-like scales on pleurae predominantly pale or with numerous pale ones intermixed; fine hair-like scaling on thorax above mainly deep golden yellowish; scaling on abdomen above, other than white ones across hind margins, predominantly deep ochreous yellowish; transversely arranged white scaling, especially in ♂, apparently less interrupted discally; plumula pale or whitish; first basal cell with a distinct subapically whitish streak or spot. ♂ ♀ *consobrinus* n. sp. (p. 432)
- (b) Hair and hair-like scales on propleurae, prosternal part, pleurae and coxae entirely or predominantly dark or black; fine hair-like scaling on thorax above composed of deep golden and black ones; scaling on abdomen above, excluding white ones, not mainly pale, but with much black scaling as well; transversely arranged white scales apparently more broadly interrupted discally and white ones posteriorly in ♂ at least gleaming more bronzy or yellowish; plumula dark or black; first basal cell without any distinct whitish streak. ♂ *chalcivurus* n. sp. (p. 435)
54. (a) Hair and hair-like scales on propleurae, prosternal part, front coxae and pleurae predominantly pale or whitish or with more whitish elements intermixed; scaling on thorax and scutellum above and especially on abdomen above, other than white scales on latter, either predominantly pale, whitish greyish, or yellowish whitish or with more pale ones; venter with dense and mainly whitish scaling; scaling on legs mainly whitish. 55
- (b) Hair and hair-like scaling on these parts predominantly dark or black or with more numerous black elements; scaling on thorax and scutellum above and on abdomen above, other than white ones on latter, with distinctly more and denser black scaling; venter with sparser white scaling and more numerous black ones; scaling on legs also mainly dark or blackish in certain lights. ♂ *cuthbertsoni* n. sp. (p. 440)
55. (a) Wings (pl. i, fig. 9) with a slight extension of infuscation in marginal cell beyond discal spot; a distinct small roundish spot on cross vein at base of upper cubital branch and another at base of third posterior cell and sometimes even with an indication of a faint spot at apex of discoidal cell; first basal cell without a distinct or conspicuous sub-

- opaquely whitish spot; white scaling across hind margins of tergites 2 and 3 more broadly interrupted discally. ♂ ♀ form of *caffer* n. sp. (p. 416)
- (b) Wings without any extension of infuscation in marginal cell beyond discal spot; cross veins without any spots or with only a very faint indication of one at base of third posterior cell; first basal cell usually with a distinct subopaquely whitish streak or spot; white scaling across hind margins of tergites 2 and 3 very little or scarcely interrupted discally. 56
56. (a) Infuscation in wings darker, dark brownish to chocolate brownish; spot on middle cross vein region larger, triangular and extending to costal cell, thus appearing more as a peninsula of infuscation in costal cell; base of upper cubital branch tending to be less sharply bent at right angles; hairs on coxae mainly whitish or with more numerous pale hairs in ♂ at least; extreme sides of tergites below with distinct white hairs intermixed in the dark tufts; fine pale scales on abdomen above broader; prongs of ♂-hypopygium slightly narrower, more slender and longer. ♂ ♀ *eremobius* n. sp. (p. 441)
- (b) Infuscation paler, more yellowish, the middle parts of cells in this part more translucent; spot on middle cross vein region much smaller, narrower and not or scarcely reaching costal cell, tending to be isolated; base of upper cubital branch tending to be more sharply bent at right angles and sometimes with a suggestion of a stump; hairs on coxae mainly dark or with much fewer pale ones; extreme inflexed sides of tergites without any pale or whitish hairs among dark ones; fine pale scaling on abdomen above with the individual scales finer and narrower; apical prongs of hypopygium more flattened and relatively shorter. ♂ *doliops* n. sp. var. *gamka* n. (p. 438)
57. (a) Wings not entirely or predominantly hyaline, the base, costal cell, base or basal part of marginal cell and first and second basal cells tinged or infused to a variable extent; spots on at least middle cross vein and base of fourth posterior cell more distinct or even conspicuous and sometimes spots or faint cloudiness are also indicated at base of third posterior cell or even at base of upper cubital branch; middle cross vein usually at about or just before middle of discoidal cell or at least beyond basal third of latter cell and rarely at about its basal third. 58
- (b) Wings predominantly or entirely hyaline, only the extreme base and costal cell slightly subopaquely whitish, yellowish whitish or yellowish; spots only very faintly indicated or as a very faint cloudiness at base of third main vein, on middle cross vein and at base of fourth posterior cell; middle cross vein at about or at only a little more than basal third of discoidal cell. 62
58. (a) Hair on sides of abdomen longer, much denser, more shaggy or tufty and either with whitish hairs or whitish tufts intermixed, especially on sides of tergite 2 and below those on other tergites, or with conspicuous, dense, flattened, white scales between and below black tufts; coxae with more black bristly hairs; wings tending to be more darkly infuscated or spotted anteriorly; second vein originating obtusely a little before middle cross vein and usually without or scarcely an indication of a stump; femora with denser, longer and more conspicuous fine hairs below; spines on femora and spicules on tibiae more strongly developed, more numerous; antennae tending to be closer together; joint 2 subglobular or sub-barrel-shaped; terminal joint of joint 3 much shorter than slender part and not thickened in middle. 59
- (b) Hair on sides of abdomen relatively shorter, much sparser and not dense and shaggy and without long white ones or with long and dense white scales intermixed; coxae without any or with much fewer black bristly hairs; wings tending to be more faintly infuscated or spotted anteriorly; second vein originating at right angles opposite or near middle cross vein and usually with a distinct stump; femora without any or with very much shorter hairs below; spines and spicules less strongly developed; antennae tending to be more widely separated; joint 2 more flattened, lens- or disc-shaped and, if barrel-shaped, other characters do not differ; terminal joint of joint 3 longer, only slightly shorter or at least subequal in length to or even longer than slender part and usually distinctly thickened in middle, being more or less sub-spindle-shaped (cf. text-fig. 161). 60

59. (a) Infuscation in wings anteriorly more uniform dark blackish brown, extending from base of anal cell more or less zigzag obliquely across basal cross vein of fourth posterior cell, middle cross vein and then to about midway between latter and base of upper cubital branch and from there across to costal cell; plumula black; hair on sides of abdomen in form of dense tufts of long black hairs with some long white hairs intermixed and white hairs along extreme inflexed sides below black ones; whitish hair-like scales on pleurae less dense and conspicuous; white scaling on abdomen posteriorly in ♂ not conspicuously transversely arranged and without conspicuous or extensive ochreous or orange yellowish scaling on abdomen above; antennal joint 1 black, relatively much shorter. . . . some forms of ♂ ♀ *trisinuatus* n. sp. (p. 449)
- (b) Infuscation in wings anteriorly not uniform, tending to be in form of darker spots or infusions at base of third vein, middle cross vein and apex of second basal cell, separated by less tinged or even clear or hyaline areas, sometimes represented only by infusions on these sites and thus appearing more hyaline and the anal cell always entirely hyaline; plumula whitish; vestiture on sides of abdomen in form of tufts of dense black hairs, separated by longish, flattened, white scales across hind margins of tergites and also with similar scales on extreme sides below; whitish hair-like scales on pleurae much denser and conspicuous; white scaling on abdomen posteriorly in ♂ conspicuously arranged transversely and with conspicuous patches of yellowish, ochreous, or orange yellowish scaling on abdomen above; antennal joint 1 yellowish or brownish and longer. . . . ♂ ♀ *muticus* (Bezz.) and its forms (p. 446)
60. (a) Wings more uniformly tinged yellowish brownish or brownish in basal half of marginal cell and in first basal cell, the second basal cell clouded to a variable extent and without any distinct indications of spots at base of upper cubital branch and at base of third posterior cell. . . . 61
- (b) Wings (pl. i, fig. 16) less uniformly tinged or infuscated in basal part of marginal cell and in apical part of first basal cell, the basal and subapical parts of first basal cell and base of marginal cell being clearer and less tinged or infused than base of third vein, middle cross vein and apical part of second basal cell, the latter clear for the greater part, with distinct spot-like infusions on basal cross vein of upper cubital branch and base of third posterior cell and even an indication at apex of discoidal cell. . . . ♂ *spathistylus* n. sp. (p. 443)
61. (a) Hairs on propleural part white, without any dark ones intermixed on coxae and in mesopleural tuft; hair on venter mainly gleaming sericeous whitish; scaling on abdomen above mainly pale and with the ochreous or yellowish brownish ones arranged more or less transversely across basal parts of tergites and along mid-dorsal line, without any distinct or conspicuous patches of black scaling on sides of tergites above between white ones; scaling on venter entirely whitish; terminal joint of antennal joint 3 (text-fig. 161) slightly longer than slender part; second basal cell in wings tending to be clearer and spot at its apex smaller. . . . ♀ *intermedius* Hesse (p. 442)
- (b) Hairs on propleural part tinted yellowish, with some dark or black ones intermixed on coxae and in mesopleural tuft; hair on venter in apical half or more dark; scaling on abdomen above with much black scaling and with the darker, more fulvous brownish or blackish brown ones more extensive on sides in form of conspicuous dark or blackish patches between white ones; scaling on venter with dark or blackish ones, especially on sides; terminal joint of antennal joint 3 usually slightly shorter than slender part; second basal cell tending to be clouded all over and spot at its apex larger. . . . ♀ *spathistylus* n. sp. (p. 443)
62. (a) Second vein in wings originating obtusely either opposite or just in front of middle cross vein and without a basally directed stump; upper cubital branch distinctly less sinuous; antennae closer together; joint 2 subglobular or sub-barrel-shaped; bulbular base of joint 3 more bulb-like; hair on thorax and pleurae denser, the hair-like scaling on pleurae and coxae much denser; hairs in collar, on propleurae, prosternal part and pleurae mainly creamy whitish; those on sides of tergites 2 and 3 also pale creamy yellowish to ochreous yellowish and with fewer black ones; scaling on abdomen mainly pale, the more whitish ones arranged almost uninterruptedly across hind margins; hind margins of tergites and sternites, especially in hinder half, more broadly reddish;

- legs with much denser whitish scaling, the tibiae much paler yellowish and subequal in length or only a little longer than femora. ♂ ♀ *elutus* (Bezz.) (p. 448)
- (b) Second vein originating at right angles opposite middle cross vein and with a longish stump; upper cubital branch distinctly more sinuous; antennae more wider apart; joint 2 lens- or disc-shaped; broad base of joint 3 more flattened and discoidal; hair on thorax and pleurae sparser and hair-like scales on pleurae and coxae very sparse; hairs in collar and on lower parts of thorax with dark or black ones intermixed; hairs on sides of tergites 2 to 7 mainly dark or black or with fewer pale ones; scaling on abdomen, other than discally interrupted white bands and some greyish or yellowish ones, with much dark or blackish ones as well; hind margins of tergites and sternites not or only obscurely or narrowly reddish posteriorly; legs with sparser greyish whitish scaling, the tibiae more brownish and distinctly much longer than femora. ♂ *kaokoënsis* n. sp. (p. 445)
63. (a) Dark and white tufts of flattened scale-like hairs and scales on sides of tergites 2-5 distinctly much longer, denser, more shaggy or bushy; bristly hairs on sides of abdomen also longer and denser and those along extreme inflexed sides much more numerous and denser; hairs and scales on prosternal part, mesosternum and coxae distinctly longer, denser, more bushy; ocellar tubercle smaller, subglobular, pimple-like, scarcely longer than broad, the front ocellus not or scarcely larger than posterior ones; terminal joint of antennal joint 3 much longer, only a little longer than or not less than twice length of slender part; scutellum distinctly less convex, more flattened discally, more subtriangularly rounded, its apex more bluntly pointed; front and middle femora with distinctly longer and denser fine hairs below; basal joint of front tarsi with only fine brush-like hairs or with much shorter and feebler spicules among them; wings with 3 to 6 spots or spot-like infuscations. 65
- (b) Dark and white tufts of flattened scale-like hairs and scales on sides of tergites 2-5 (or 6) relatively shorter, less dense, less shaggy; bristly hairs on sides of abdomen relatively shorter or very much shorter, less dense and those along extreme inflexed sides distinctly fewer, sparser, less dense; hairs and scales on sternal parts and coxae much shorter and less bushy; ocellar tubercle slightly larger, more elongate, distinctly longer than broad, the front ocellus usually larger than posterior ones; terminal joint of antennal joint 3 distinctly much shorter, small, very much shorter, usually not more than a third, sometimes only a fourth or fifth length of slender part; scutellum usually distinctly more convex discally and more semicircularly rounded posteriorly; front and middle femora with much shorter and sparser fine hairs below; basal joint of front tarsi with distinctly longer, stouter and more conspicuous spicules among fine hairs below; wings with 4 distinct spots in middle and fainter ones at apex of discoidal and base of second submarginal cells respectively. 64
64. (a) Longish scale-like hairs and scales on sides of tergites 2-6 denser and longer and with dense brownish ones on sides of tergites 2 and 4; hairs and scales on face gleaming silvery whitish, without black ones; hairs and scales on body below gleaming vitreous or silvery white; legs, including coxae, predominantly yellowish brownish, only upper parts of femora darkened; pleural parts more extensively yellowish brownish; middle cross vein in wings tending to be only a little before middle of discoidal cell; antennae wider apart, space between them a little more than twice length of joint 1; hind tibiae with more numerous spicules on outer upper part and these in more than one row. ♂ ♀ *hycnopeltis* n. sp. (p. 456)
- (b) Longish scale-like hairs and scales on sides of tergites 2-5 relatively sparser, shorter and with dense brownish ones only on anterior part on sides of tergite 2; hairs and scales on face more yellowish, but also with numerous dark or black hairs and, if scales are white, they are duller white; hairs and scales on body below on the whole duller, more chalky whitish and bristly hairs on coxae more straw-coloured yellowish; coxae and femora above more extensively darkened or black; pleural parts darker or with less extensive yellowish brown parts; middle cross vein tending to be much or more before middle of discoidal cell; antennae relatively closer together, space between them only about or scarcely twice length of joint 1; hind tibiae with distinctly fewer and sparser spicules on outer upper part and in a single row. ♀ *aetheocoma* n. sp. (p. 458)

65. (a) Hind margins of tergites usually distinctly more broadly reddish and the sides distinctly more extensively reddish, especially posteriorly, and more so in ♂♂; hind margins of sternites very broadly and conspicuously reddish, the red usually occupying at least half of the segment and sometimes entire venter extensively yellowish reddish; wings with at least following 5 (or 6) distinct spots: a large one at base of third vein, one at base of fourth posterior cell, a smaller one at base of third posterior cell, a large and conspicuous one on middle cross vein and a smaller more or less constant one at base of upper cubital branch and sometimes also with a faint one at apex of discoidal cell and usually also with a spot-like infusion at base of fourth vein. 66
- (b) Hind margins of tergites either not reddish or more narrowly or only obscurely so and the sides also less extensively reddish; red on sternites usually much less extensive and on less or much less than apical half of segments; wings usually with fewer, rarely with 5 or more, spots, usually with only the following 3 distinct or conspicuous spots present: a large one at base of third vein, a large and conspicuous one on middle cross vein and a smaller one at base of fourth posterior cell, but sometimes with a fourth faint one at base of third posterior cell, but usually without any spot or indication of one at base of upper cubital branch and, if one is present or indicated, hind margins on abdomen not extensively reddish and also without a distinct spot at base of fourth vein. 68
66. (a) Wings more vitreous or glassy hyaline, the base and anterior part not or less subopaquely yellowish or pale yellowish brownish; spots at base of third vein and on middle cross vein relatively smaller, with a tendency for a faint infusion to be also present at apex of discoidal cell; hind margins of tergites more broadly and conspicuously reddish, their sides more broadly so and even more so posteriorly, tergite 7 in ♂♂ being entirely or predominantly reddish; bristly hairs on coxae, certain bristles intermixed in mesopleural tuft, bristly hairs across hind margin on sides of tergite 1 and on extreme sides of tergites 4 and 5 below gleaming more pale yellowish whitish or only feebly or very pale reddish or pinkish golden; coxae with more dark or black hairs; pale hairs in collar mostly whitish; white scales across hind margins of tergites relatively shorter and broader; smaller forms, usually less than 14 or 15 mm. long. 67
- (b) Wings slightly more greyish hyaline, the base and anterior part tending to be darker, more subopaquely yellowish to yellowish brown or even dark brownish; spots at base of third vein and on middle cross vein relatively larger and without an indication of an infusion at apex of discoidal cell; hind margins of tergites only reddish discally from tergite 4 in ♂ and these very narrowly, obscurely or not red-margined in ♀, the sides in both sexes less broadly reddish and tergite 7 and sides posteriorly in ♂ not extensively reddish; hairs on coxae, numerous bristles in mesopleural tuft and in front of wing bases, bristly hairs across hind margins of tergite 1 above on sides and on extreme sides of tergites 4 and 5 below distinctly gleaming deep or deeper reddish golden; coxae with much fewer black hairs intermixed; pale hairs in collar tinted reddish golden; white scales across hind margins of tergites more elongate and narrower; large form, about 14 or 15 mm. long. ♂ ♀ *robustalis* n. sp. (p. 455)
67. (a) Hairs on face with more numerous black ones in ♂ and entirely or mainly pale in ♀, the pale ones more whitish or yellowish; humerus, sides of thorax, mesopleural tuft and coxae with fewer reddish golden bristles and hairs, many of the not entirely white ones gleaming more yellowish or yellowish white, the pleurae thus appearing more whitish; pale scaling on body above, other than white ones, more ochreous or golden yellowish, the white scales themselves longer and relatively narrower; long scale-like hairs or scales on sides of abdomen distinctly longer, narrower and apparently with longer points; flattened white scales across hind margins of tergites 2-7 slightly narrower; terminal joint of antennal joint 3 distinctly much shorter than slender part. ♂ ♀ *punctipennis* (Wied.) (p. 452)
- (b) Hairs on face with much fewer black ones in ♂ and with more dark ones intermixed in ♀, the pale ones gleaming more pinkish golden; humerus, sides of thorax above, mesopleural tuft and coxae with more numerous and more distinct or conspicuous pinkish or reddish golden bristles and hairs, the pleurae thus appearing more yellowish; pale scaling, other than white ones, deeper reddish golden, the white scales shorter and

broader; long scales on sides of abdomen relatively shorter, more strap-like, blunter and with much shorter points; flattened white scales across hind margins of tergites, even from 2, broader, flatter and cuneiform; terminal joint of antennal joint 3 scarcely or only a little shorter than slender part. . . . ♂ ♀ *punicisetosa* Hesse (p. 454)

68. (a) Wings much clearer, more vitreous or glassy hyaline or with only the basal and costal parts tinged subopaquely yellowish or only feebly smoky yellowish; spots usually smaller and less conspicuous and spot-like infuscation at base of third posterior cell fainter, scarcely indicated or sometimes absent and without an indication of a faint infusion at base of upper cubital branch; hairs on face either predominantly black, with numerous pale ones or sometimes entirely pale or whitish; mesopleural tuft and coxae without any or with fewer black bristles intermixed; scaling on body above, other than white ones, with distinctly more extensive and more conspicuous or even predominantly greyish yellowish, ochreous yellowish to brownish golden ones and the dark scaling tending to be more confined to certain patches. . . . 70
- (b) Wings distinctly more smoky greyish or brownish, the base and anterior costal part darker, more smoky brownish to even coffee-brownish; spots on cross veins (at base to third vein, on middle cross vein region and at base of fourth posterior cell) distinctly more conspicuous or larger and spot at base of third posterior cell usually well defined and usually also with an indication of a spot or even a distinct one at base of upper cubital branch; bristly hairs on face always mainly or entirely dark or black; mesopleural tuft, coxae and trochanters with more numerous black bristles intermixed and, if without any black hairs, wings are darkened basally; scaling on body above, other than white ones, usually with fewer pale ones and more extensive black scaling in addition to dark patches. . . . 69
69. (a) Face, mesopleural tuft and coxae with distinctly more numerous black bristly hairs or more black ones intermixed; scaling on body above, especially abdomen and excluding normal white scales, with more extensive dark or black ones in addition to usual patches of dark ones and with much fewer or scarcely any pale scales; terminal joint of antennal joint 3 usually longer, sometimes scarcely or only a little shorter than slender part; femora on the whole more extensively darkened. . . . ♂ ♀ *incisuralis* f. *fumosa* n. (p. 463)
- (b) Face and especially mesopleural tuft and coxae with distinctly fewer or without any black bristly hairs intermixed, sometimes with some pinkish or reddish golden ones also intermixed in mesopleural tuft and on coxae; scaling on body above and especially abdomen with much yellowish or ochreous yellowish to ochreous brownish scaling in addition to white ones and the black ones which are more confined to dark patches; terminal joint of antennal joint 3 tending to be relatively shorter, usually distinctly much shorter than slender part; femora apparently less extensively darkened, the lower part and especially lower apical parts paler or more extensively yellowish. . . . some dark-winged forms of ♂ ♀ *incisuralis* (Macq.) (p. 459)
70. (a) White scaling on head and body above conspicuously developed, that on thorax arranged more or less in four longitudinal bands of slightly longer and broader hair-like ones; that across hind margin of scutellum dense; that across hind margins of tergites 2-7 composed of conspicuous, relatively short, broadish, more or less cuneiform scales, those posteriorly on each side very broad and flattened, strap-like; antennal joints 1 and 2 more constantly paler reddish. . . . ♂ ♀ *incisuralis* f. *aridicola* n. (p. 462)
- (b) White scaling on these parts developed to a lesser extent, that on thorax either in four less conspicuous bands of duller and finer greyish ones or even predominantly dark and reddish or brownish; white scaling on scutellum also finer, less conspicuous or sometimes more yellowish; that across hind margins of tergites composed of relatively narrower, finer, sometimes more bat-shaped ones, sometimes with those discally across some of the tergites tending to be more greyish or yellowish and sometimes these whitish scales are absent or not evident, the white ones posteriorly usually less conspicuous, usually distinctly narrower and either shortish or long; antennal joints 1 and 2 usually darker, black or only obscurely reddish or brownish to a variable extent. . . . 71

71. (a) White scales across hind margins of tergites more developed and more conspicuous, the individual scales slightly broader and those on sides broader and more conspicuous; hairs on face with more numerous black ones or even entirely dark in both sexes; antennal joints 1 and 2 usually darker or black; lower apical part of at least front femora more distinctly or even extensively reddish; red hind margins of tergites more indistinct or not so conspicuous; spots in wings usually larger and more conspicuous. 72
- (b) White scales across hind margins of tergites above discally not developed or very poorly developed, the individual scales finer, more slender and hair-like and those on sides also more slender and less conspicuous; hairs on face, especially in ♀, with much fewer dark ones or even entirely pale or whitish; antennal joints 1 and 2 or at least 2 more reddish to a variable extent; femora entirely dark or black or apical part of front ones at least not or more obscurely reddish; reddish hind margins of tergites and sternites usually more conspicuously evident; spots in wings distinctly smaller, fainter and the one at base of third posterior cell often scarcely indicated. ♂ ♀ *incisuralis* f. *glaucescens* n. (p. 462)
72. (a) Femora very dark or black, only their lower apical parts reddish to a variable extent and their scaling mainly whitish; head and body usually with very pale, whitish or greyish whitish or straw-coloured scales, those on thorax more or less in four bands; hind border of scutellum with fairly conspicuous whitish scales; hind margins of tergites with more or less interrupted bands of fine bat-shaped scales usually composed of more or less interrupted stretches of greyish white or snow-white ones; yellowish, ochreous yellowish or yellowish brownish scaling on abdomen above less conspicuous, long scales in tufts on sides slightly narrower, more spear-blade-shaped subapically and their apices very sharply pointed; wings usually more vitreous hyaline. ♂ ♀ *incisuralis* (Macq.) and transitional forms of it (p. 459)
- (b) Legs black or sometimes extensively yellowish and with yellowish scaling; head and body with more brownish or deeper brownish golden scaling, those on thorax dense, hair-like and mainly deep brownish golden; hind margin of scutellum sometimes with more yellowish or yellowish whitish scales; hind margins of tergites with the pale scales across them tending to be white only on sides and more yellowish whitish discally, especially in ♀; abdomen above with deep brownish golden or fox-reddish scaling conspicuously developed; long scales in tufts on sides of abdomen slightly broader, more strap-like, with most or many of them truncate apically, their apical margin emarginate or bluntly rounded; wings more greyish hyaline. ♂ ♀ *incisuralis* (Macq.) from Rhodesia (p. 464)

Anthrax conspurcata Wied.

(Wiedemann, p. 264, *Aussereurop. Zweifl. Ins.*, i, 1828.)

(Syn. = *rubiginipennis* Macquart, tab. 19, fig. 10, *Dipt. Exot.*, ii, 1840 (wing only); *confusemaculata* Macq., p. 74 and tab. iii, fig. 9, *Dipt. Exot., Suppl.* v, 91, 1855; *spectabilis* Loew, p. 213 and tab. ii, fig. 17, *Dipt. Faun. Südaf.*, i, 1860; Ricardo, p. 92, *Ann. Mag. Nat. Hist.*, vii (7), 1901; Hesse, p. 173, *Ann. Transv. Mus.*, xviii, 1936; *pithecius* Bezzi, nec Fabr., p. 621, *Trans. Ent. Soc. Lond.*, 1911; Bezzi, p. 122, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 161, *The Bombyliidae of the Ethiopian Region*, 1924.)

This conspicuous and fairly common South African species agrees well with Wiedemann's somewhat abbreviated description of *conspurcata* and there appears to be very little doubt that the other species mentioned above are synonyms of it. In the case of *rubiginipennis* Macq., which itself has been established as a synonym

of the Palaearctic *Spongostylum etrusca* Fabr., it is only the illustration of the wing which is that of *conspurcata*. Notwithstanding Loew's remarks about *confuse-maculata* it is quite evident that Macquart's figure of the wing agrees with that of *spectabilis* described by Loew and with the general wing-pattern present in the specimens before me. There appears to be no justification either for Bezzi to refer this species to *pithecius* which Fabricius described from Guinea. From a comparison of the wing-pattern of the specimens in the various collections before me with that of *pithecius*, as described by Wiedemann (p. 263, loc. cit.), it is evident that the two species are not identical. Only a comparison of specimens of the present species with the original type of *pithecius* will however settle this question of identity. Loew's description of *spectabilis* is very satisfactory and a redescription of *conspurcata*, as based on a large number of specimens from various localities, is as follows:

Body predominantly black; area around antennae, basal part of face, buccal cavity, antennae, infusions along pleural sutures to a variable extent, sometimes narrow hind margins of sternites and male genitalia brownish or sienna brownish; coxae and greater part of femora dark or blackish brown or sienna-brownish, the tibiae and tarsi usually paler yellowish brown and apices of tarsi and claws usually blackish. *Vestiture* with the shortish hair on frons mainly black; that on antennae also black; that on face composed of black and pale greyish yellowish to slightly reddish gleaming ones intermixed especially above buccal cavity; fine hair on occiput gleaming fulvous, yellowish brownish to velvety brownish; short hairs on disc of thorax predominantly blackish brown or black; longer ones in collar black and whitish or straw-coloured, becoming more whitish to fulvous on humerus; some bristles on sides of thorax, prealar and postalar bristles black and with some reddish yellowish gleaming ones on sides of thorax; mesopleural tuft whitish or straw-coloured whitish; longish hairs in propleural part and front coxae mostly whitish or tinted pale reddish golden, but with intermixed dark or black hairs, especially on front coxae; fine hairs and hair-like scaling on pleurae appearing whitish, greyish, yellowish or fulvous or even reddish golden in certain lights, but the true fine hairs are really dark or blackish brown; bristly hairs on coxae, fine ones on scutellum and also the bristles and bristly hairs on abdomen above black; dense tuft on sides of tergite 1 either predominantly white or yellowish white, but with the hairs on extreme sides below gleaming more reddish yellow or the lower part is dark or with numerous intermixed black ones; dense tufts on rest of sides either entirely black or with some intermixed pale bristles ventrally on extreme sides of apical parts of tergites; hair on venter relatively sparse, predominantly dark or brownish in specimens with black hairs on extreme sides of tergite 1, but paler, more greyish whitish to even pale yellowish whitish in forms with an entirely pale tuft on tergite 1; female genital tuft yellowish, brownish fulvous to brownish golden; fine hair-like scaling on frons, face and thorax above gleaming greyish whitish to yellowish whitish, sometimes even pale reddish golden; that on abdomen above usually predominantly dark or black, but with some across

hinder part of tergites gleaming more sericeous yellowish to golden; snow-white, broadish, truncated, lanceolate scales across hind margins of tergites 2-5 conspicuous, dense, long and tuft-like on sides, but sparse and short or even absent discally; those on sides of tergites 6 and 7 in ♂ very dense, flattened, cuneiform, truncated, brilliantly silvery white and arranged transversely; those on sides of 6 in ♀ in form of a dense tuft of snow-white and silvery cuneiform scales; fine scaling on venter whitish, sericeous yellowish to slightly fulvous; dense scaling on legs dull greyish yellowish to yellowish, usually slightly paler on tibiae, appearing dark on femora in some specimens. *Wings* with a very conspicuous and distinctive pattern of spots and infusions as portrayed by Macquart and Loew (loc. cit.), composed of a brownish or blackish brown costal cell and more or less two broad transverse blackish brown infusions and coalescing spots across basal part up to end of second basal cell and across wing beyond middle cross vein to base on second submarginal cell, the basal infusion extends beyond apex of second basal cell into a round spot at base of third posterior cell and in infusion at base of fourth posterior cell, with a fairly conspicuous pale or clear spot in anal cell and in axillary lobe and another fainter one at base of first basal cell; the other transverse infusion beyond middle composed of coalescing spots and patches, occupying marginal cell, basal part of first submarginal cell, more than basal half of first posterior cell, apical part of discoidal cell and two broadish prongs along posterior veins separating third posterior cell from second and fourth, and usually coalescing with this large infusion, but sometimes separate, is a large round spot on middle cross vein and another even larger rounded spot at base of upper cubital branch, the latter sometimes coalescing with infusion in marginal cell thus isolating a quadrangular clear area in first submarginal cell a little before upper cubital branch, the irregular clear area between the two large transverse infusions does not extend across costal cell and becomes very broad in fourth posterior cell; two large contiguous or coalescent spots on apical part of second vein and another on kink of upper cubital branch respectively, another smaller spot at end of same vein and an isolated rounded spot at apex of posterior vein between first and second posterior cells; second vein originating at right angles about opposite middle cross vein, usually with a stump; middle cross vein a little before middle of discoidal cell; upper cubital branch bent at right angles at about middle and provided there with a distinct stump, its base also at right angles and with a stump; lower vein of discoidal cell also with a kink at about middle and usually with a short stump at this kink projecting into third posterior cell; first posterior cell much narrowed apically; plumula whitish, yellowish to pale yellowish brownish, sometimes with some intermixed dark hairs. *Head* with the interocular space at narrowest part in front of ocellar tubercle quite or a little more than 3 times width of tubercle in ♀, very slightly narrower in ♂; antennae (text-fig. 133) separated by a distance quite twice length of joint 1, joint 2 saucer-shaped, joint 3 with the broad base discoidal, its basal margin tending to be rim-like, its slender part sometimes quite twice as long as broad



TEXT-FIG. 135. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Anthrax conspurcata* Wied.

base, its apical or terminal joint about a third to often a fifth length of slender part. *Legs* with spines on all the femora below; hind tibiae with a dense and conspicuous row of spicules on outer upper aspect. *Hypopygium* of ♂ (text-fig. 135) with the beaked apical joints appearing blunt apically; aedeagus with a recurved ventral hook-like process. Two protruding terminal lamellae in last sternite of ♂ rounded apically.

In the Commonwealth Institute, British, Transvaal, Rhodesian, Natal, Durban, Albany and South African Museums.

Length of body: about 7–14 mm.

Length of wing: about 8–16 mm.

Locality: South-eastern Cape Province, Basutoland, Natal, Zululand, Eastern and Northern Transvaal, Southern Rhodesia and South-West Africa.

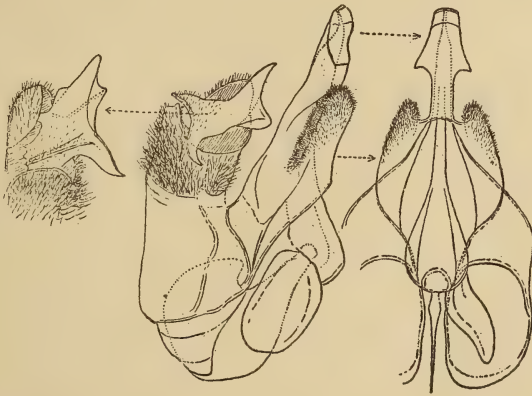
This species is very easily distinguished from most South African species by its distinctive and spotted wing-pattern. Within limits it appears to be variable in characters such as the extent of the coalescence of the large spots in the wings, the presence or absence of dark hairs on sides below the white tuft on sides of tergite 1, the predominance or poor development of pale hairs and scaling on pleurae, abdomen above, and venter, etc. This species seems to be entirely absent from the drier and semi-arid inland plateau.

Anthrax plumipes n. sp.

Superficially this species resembles *conspurcata* very closely, but on comparison is found to differ markedly in the following respects:

Body with the pleurae and even sides of tergites below more uniformly castaneous brown or reddish brown. *Vestiture* with the erect hairs and bristly hairs predominantly or entirely black, especially on face, sides of thorax, in mesopleural tuft, pleurae and venter, only a few intermixed pale hairs being present in collar; tuft on sides of tergite 1 with much less extensive white upper part and without any pale hairs on extreme sides of tergites or on venter; scaling with fewer pale ones on frons and face; that on sides of thorax and pleurae, coxae and on venter predominantly dark, apparently without any fine pale scaling on abdomen above, these scales being distinctly broader, more lanceolate, gleaming distinctly purplish black; scaling on legs distinctly much darker, only gleaming greyish graphite-like or purplish in certain lights; white scaling on abdomen in form of shorter cuneiform scales in small patches on sides of tergites 1–4, with the conspicuous silvery ones at end of abdomen present on sides of last three tergites in ♂, distinctly shorter and not arranged transversely; that on sides posteriorly in ♀ also shorter than in ♀ of *conspurcata*. *Wings* (pl. i,

fig. 1) with a more or less similar pattern, but with the basal infuscation more uniform, the clearer spots in anal cell and base of first basal cell very indistinct; infuscation in marginal cell continuous apically, leaving only a small clear preapical area; infuscation at apex of second vein in form of a small spot and not two large confluent spots; spot on kink of upper cubital branch larger; spot at apex of first posterior cell very much larger or occupying both posterior veins; spot at base of third posterior cell isolated and not confluent with basal infuscation; infuscation at apex of posterior vein between third and fourth posterior cells tending to be isolated and with a distinct clear hyaline spot near base of first



TEXT-FIG. 136. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of aedeagal complex of ♂ *Anthrax plumipes* n. sp.

posterior cell; second vein not deeply bent or sinuous apically; vein between discoidal and third posterior cells only sinuous, not sharply kinked and also without a stump; anal cell closed apically on hind border of wing. *Head* with the interocular space in front of ocellar tubercle relatively narrower, not quite 3 times width of tubercle; antennae distinctly more widely separated, quite $3\frac{1}{2}$ times length of joint 1, terminal joint of joint 3 longer, about half as long as slender part. *Legs* with more and denser hairs on femora, with much denser, longer, more conspicuous, flattened scales on hind tibiae on outer and inner aspect, giving them a feathery appearance, not present in other species; tarsi distinctly much longer, subequal in length to tibiae. *Hypopygium* of ♂ (text-fig. 136) entirely different from that of *conspurcata*; beaked apical joints complex, with forwardly and backwardly projecting prongs as shown in figure; aedeagal complex without a ventrally directed hook, but with a finely spinulate process on each side and a hook-like edge on each side. Terminal lamellae in last sternite more obtusely angular apically.

From a ♂-holotype in the South African Museum and a ♀-allotype in the Transvaal Museum.

Length of body: about $12\frac{1}{2}$ –15 mm.

Length of wing: about 13 – $15\frac{1}{2}$ mm.

Locality: Southern Rhodesia: Saw Mills (Stevenson, 10 Dec. 1926) (holotype). North-west Transvaal: Mara near Pietersburg (Breyer, June 1918) (allotype).

Anthrax nubeculosus n. sp.

Body black; buccal cavity yellowish; pleural area below base of wings and along sutures yellowish brownish to castaneous brownish to a variable extent; extreme sides of tergites below and venter more or less pale yellowish brownish or castaneous; sides of last two tergites broadly pale yellowish brownish or even reddish; hind margins of sternites more pale yellowish than rest of venter; hypopygium of ♂ yellowish reddish; femora dark or dark blackish brown, their lower apical parts paler, more yellowish brownish, the tibiae and tarsi pale yellowish brownish, the apical parts of the latter and apices of claws dark. *Vestiture* with the hairs on head predominantly black; fine bristly ones on disc of thorax black; bristles on sides of thorax and on scutellum also black; hair in collar, propleural and prosternal parts mainly whitish or greyish whitish; mesopleural part with numerous intermixed black bristles; bristly hairs on coxae also black; those on abdomen above and dense tufts on sides predominantly black; tuft on sides of tergite 1 however white; hairs on venter mainly dark or black; scaling on frons and face greyish white to whitish; that on thorax above composed of fine black ones and gleaming greyish white or white ones, especially posteriorly and on scutellum; that on sides of thorax more hair-like and white; a patch at apex of scutellum consists of broadish white scales; longish hair-like scales on pleurae greyish white to white; scaling on abdomen above in form of flattened black scales which in certain lights gleam pale, of broader, white, cuneiform ones arranged more or less transversely across hind



TEXT-FIG. 137. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of apical part of aedeagal structure of ♂ *Anthrax nubeculosus* n. sp.

margins of segments, more densely on sides, those on sides of tergite 1 more slender, those on sides of other tergites extending right round to below between black tufts, those on last two tergites arranged transversely, dense, cuneiform and gleaming silvery; scaling on legs predominantly white, becoming brownish or black towards apices of femora and those on venter white and cuneiform. *Wings* (pl. i, fig. 2) with the dark coffee-brownish infusions and spots as shown in figure, the rest of wing glassy hyaline; second vein originating at right angles at a distance in front of middle cross vein which is about equal to length of latter, without a stump at bend; stump at bend of upper cubital vein absent or only indicated; middle cross vein a little beyond middle of discoidal cell; vein between latter and third posterior cell angularly bent, S-shaped, with an indication of stumps at bends; axillary lobe narrow, as broad as anal cell; plumula black. *Head* with the interocular space in ♂ nearly or about 3 times width of ocellar tubercle;

antennae fairly close together, separated by length of joint 1, joint 2 sub-barrel-shaped, the terminal joint of joint 3 subequal in length to or only a little shorter than slender part. *Legs* with well-developed spines on all the femora. *Hypopygium* of ♂ (text-fig. 137) with the beaked apical joints relatively small; aedeagal complex with a small ventrally directed hook-like process apically.

From 2 ♂♂ in the South African Museum.

Length of body: about 8–10 mm.

Length of wing: about 8–11½ mm.

Locality: Namaqualand: Bowesdorp (Mus. Exp., Sept. 1941) (type); Kamieskroon (Mus. Exp., Sept. 1930).

Easily recognized by the spotted wings and white and blackish scales on abdomen above. According to the key and notes of Sack (pp. 510 and 522, *Abh. Senckenb. Nat. Ges.*, 30, 1909) this species has the characters of *Chalcamoeba* and may be considered as an aberrant species of *Anthrax* which belongs to the *Chalcamoeba*-group.

Anthrax nanus n. sp.

This small species, with uniformly infuscated wings, is characterized as follows:

Body dark chocolate-brownish; pleural parts and venter tending to be paler; hind margins of sternites narrowly yellowish and male genitalia yellowish; buccal cavity yellowish; greater part of femora castaneous or yellowish brown, the tibiae and tarsi yellowish, the apical parts of the latter dark. *Vestiture* on head predominantly dark blackish brown or black, with some intermixed straw-coloured hairs just above buccal rim especially in ♀; hair on thorax above predominantly black, but in ♀ with a few pale ones intermixed in humeral part; that in mesopleural tuft black, but with some pale hairs intermixed in ♀; that on propleural part dark, but becoming greyish on prosternal part and on front coxae; that on pleurae greyish whitish, but more yellowish brownish along upper parts, especially in ♂; hair on abdomen predominantly chocolate-brownish to blackish brown, but that on sides of tergite 1 yellowish whitish, more whitish in ♀; that on venter greyish whitish or straw-coloured; fine scaling sparse above, gleaming dull brassy in certain lights, yellowish on frons; fine brassy scales also across hind margins of tergites; rest of fine scaling on abdomen above black, without any white or silvery scaling; scaling on legs greyish yellowish in certain lights. *Wings* uniformly dark coffee-brownish, without any clear areas or spots, but with darker spot-like infusions on cross veins; veins reddish brownish; second vein sinuate before apex; upper cubital branch kinked or bent backwards at about middle and provided with a stump at base; middle cross vein before middle of discoidal cell; lower vein of latter cell sinuous; anal cell much narrowed apically, in ♂ almost closed apically; axillary lobe not very much broader than anal cell; plumula pale or yellowish whitish. *Head* with the interocular space in front of tubercle about 1½ times



TEXT-FIG. 138. Side view of hypopygium, oblique dorsal view of right apical joint, and ventral view of apical part of aedeagal process of ♂ *Anthrax nanus* n. sp.

width of tubercle in ♂ and about 2 times in ♀; antennae separated by about $2\frac{1}{2}$ –3 times length of joint 1, joint 2 sub-barrel-shaped, broader than long, terminal joint of joint 3 half as long as slender part. *Legs* without any spines on front and middle femora, but with some shortish ones on outer lateral and upper apical aspect of hind ones. *Hypopygium* of ♂ (text-fig. 138) with the apical joints wrench-shaped, the upper limb very much laterally compressed; aedeagal complex with the ventral process in form of three hook-like processes as shown in figure.

From a ♂-holotype in the Commonwealth Institute and a ♀-allotype in the South African Museum.

Length of body: about 5–6 mm.

Length of wing: about $6\frac{1}{2}$ mm.

Locality: Southern Rhodesia: Matopo Hills (Mackie, April 1932) (holotype); Redbank (Stevenson, 18 Aug. 1926) (allotype).

Easily recognized by its uniformly dark coffee-brown wings, dark hair, absence of silvery scaling on abdomen and small size.

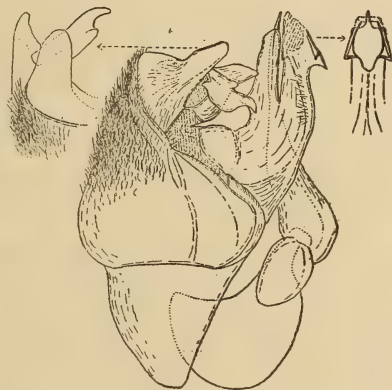
Anthrax badius n. sp.

(Syn. = *diffusus* Bezzi, in part, nec Wiedemann, p. 123, *Ann. S. Afr. Mus.*, xviii, 1921.)

The large specimen (minus the head) which Bezzi referred to *diffusus* Wied. and which is characterized by wholly infuscated wings, is not *diffusus* but belongs to this species. From the description of *diffusus*, given by Wiedemann (p. 291, *Aussereurop. Zweifl. Ins.*, i, 1828) and from specimens of the latter before me, it differs in the entirely infuscated wings, relatively shorter tufts on sides of abdomen, entirely or predominantly dark hair on sides of tergite 1, entirely different type of hypopygium, etc. The chief distinguishing characters of this remarkable species are:

Body black; face and buccal part yellowish brownish to muddy brownish; antennae, infusions on or along sutures of pleurae, humeral angle, sometimes sides of thorax above, hinder part of scutellum, sides of abdomen and venter to a variable extent and the male genitalia reddish brown, piceous reddish to hematitic reddish in ♂ and darker in ♀; legs dark reddish brown, piceous reddish or hematitic reddish, the femora however darkened above to a variable extent and apical parts of tarsi also darkened. *Vestiture* with the bristly hairs and bristles on head and body predominantly black, but with some pale or whitish hairs intermixed in collar and on front coxae; tuft on sides of tergite 1 entirely

black or with its upper part only slightly whitish in some ♂♂; fine hair-like scaling above somewhat sparse, appearing yellowish brownish to fulvous brownish or even dull brassy in certain lights, those on pleurae brownish, darker in ♀; fine scaling on abdomen above black and the broadish silvery white ones arranged as small, conspicuous, transverse patches across hind margins on sides of tergites 1-4 and more broadly, extensively and more conspicuously on side of tergites 5-7; scaling on venter black; scaling on legs blackish or black, gleaming greyish or graphite-like, that on femora above more conspicuously black. *Wings* well developed, wholly infuscated dark chocolate- to coffee-brownish, the apical and hinder parts slightly less darkly infused and with distinct darker spot-like infusions on cross veins; upper cubital branch almost bent at right angles just before the middle and with a stump at its base; middle cross vein a little before middle of discoidal cell; vein separating latter from third posterior cell sinuous, not angularly bent or with a stump; axillary lobe very much broader than anal cell; squamae brownish, brownish-fringed; plumula black. *Head* with the interocular space on vertex in ♂ a little more than 2 to a little more than 3 times width of tubercle and about 4 times width of tubercle in ♀; antennae separated by about 2 to almost 3 times length of joint 1, joint 2 saucer-shaped, discoidal part of joint 3 with its basal part rim-like, terminal joint of 3 about or a little more than a fourth length of slender part; proboscis very short, stumpy, its labellar lobes broad, longer than base and spinuliferous. *Legs* with numerous spines on all the femora below; spicules on outer upper aspect of hind tibiae dense and very strongly developed. Apical margin of last sternite in ♂ slightly bisinuate and the lateral apical angles produced into a spine-like or tooth-like process which is not present in any other species; terminal lamellae in last sternite hoof-shaped and broadened apically. *Hypopygium* of ♂ (text-fig. 139) markedly developed, large and conspicuous; basal parts rugosely sculptured on dorsal apical half, and with stiff hairs, their apical part produced into two downwardly directed processes between which the apical joint is situated; the latter with an outer lateral tooth or process and keeled ventrally; aedeagal complex with a slight process on its dorsal aspect between apical joints, and with a process ventrally, the apical part of which is produced into a medial ventrally directed process and an upper and lower flattened dentate process on each side.



TEXT-FIG. 139. Side view of hypopygium, apical view of apical processes of basal parts and beaked apical joint, and ventral view of apical part of ventral aedeagal process of ♂ *Anthrax badius* n. sp.

From 8 ♂♂ and 1 ♀ (types in the South African Museum and paratypes in the Transvaal and South African Museums).

Length of body: about $11\frac{1}{2}$ – $15\frac{1}{2}$ mm.

Length of wing: about $13\frac{1}{2}$ –17 mm.

Locality: South-western Cape: Boskloof, Worcester (Wood, Jan. 1933) (holotype); Hex River: Robertson (Trimen, Jan. 1876); Ceres (Barnard, 1922); Spitskop, Meiringspoort in the Swartberge (Mus. Exp., Jan. 1935); Schusters River near Simonstown (Thorne, Feb. 1938). Eastern Cape: Resolution in Albany Dist. (Walton, 27 Dec. 1921). Basutoland: Mamathes (Guillarmod, 28 Jan. 1951) (allotype).

This species is easily recognized by its size, wholly infuscated wings, black hair and remarkable hypopygium. The presence of an apical prong on each side of last sternite in ♂ is also a distinguishing feature. It is remarkable that in the Cape only the ♂♂ of this species have thus far been taken. Like many other dark-winged Bombyliids in the southern Cape and other mountainous parts of South Africa it is a species adapted to a montane existence.

Anthrax phaeopteralis n. sp.

(Syn. = *diffusus* Bezzi, nec Wiedemann, p. 123, *Ann. S. Afr. Mus.*, xviii, 1921.)

The specimen from 'Jackalswater' was referred to *diffusus* Wied. by Bezzi. From Wiedemann's description (p. 291, *Aussereurop. Zweifl. Ins.*, i, 1828) which he also compares with his other fairly distinctive species *hessii*, it is evident that this specimen belongs to a different species. According to Wiedemann three distinct spots are present in the wings of *diffusus* and the anterior basal infuscation is more delimited. In this specimen the brownish infuscation merges almost imperceptibly into less infused parts of wings and spots at bases of posterior cells are very faint. The two specimens are characterized as follows:

Body black; sutural parts of pleurae more or less castaneous brownish to a variable extent; hind margins of sternites also tending to be broadly, but obscurely, reddish brownish and hind margins of tergites 4–7 on sides also reddish brownish; femora very dark blackish brown or piceous brownish, the tibiae slightly paler, more reddish brownish. *Vestiture* on head, disc of thorax and bristles on its sides black; hair in collar and on humeral part whitish, but with intermixed black bristles; those in tuft above front coxae and on front coxae more yellow or pale fulvous brownish, but with some intermixed black elements; hair on pleurae blackish brown to brownish, with whitish hairs intermixed in mesopleural tuft; hairs on abdomen above and below predominantly black, that on sides dense and tufty and that on sides of tergite 1 brush-like and white; fine scaling on head, thorax and scutellum gleaming brownish golden to brassy yellowish; fine hair-like scaling on pleurae brownish yellowish; fine scaling on abdomen above predominantly black; the very dense broadish silvery white scales broad on sides of tergites 5–7, leaving only a narrow discal part

black and in form of small patches on sides of tergites 2-4; scaling on venter mostly dark; that on legs also dark but gleaming greyish or brownish. *Wings* with the costal cell and basal two-thirds up to level of second basal cell and across to end of costal cell coffee- or chocolate-brownish, this darker part more or less imperceptibly grading into greyish and less tinged apical and hinder parts and apical parts of anal and axillary cells; spot-like infusions on apical cross veins of first and second basal cells more distinct and larger than the very much fainter indications of spots on other cross veins; base of second vein with a long stump; upper cubital branch also with an indication of a stump; middle cross vein distinctly before middle of discoidal cell; vein between latter cell and third posterior cell sharply bent at about the middle; plumula black. *Head* with the interocular space in ♂ about or a little more than $2\frac{1}{2}$ times width of tubercle; antennae separated by about twice length of joint 1, joint 2 sub-barrel-shaped, broader than long, slender part of 3 about 2 times length of terminal joint, the apical hairs of latter rather long, quite as long as joint itself.

Legs with spines on all the femora below, those on hind ones more or less in two rows. *Hypopygium* (text-fig. 140) with the apical part of basal parts produced prong-like; beaked apical joints complex, their apical margin much flattened and rounded as shown in figures; aedeagal complex tridentate apically on its ventral aspect; middle part of aedeagal complex and lateral and basal struts very strongly developed, the basal strut with a flattened wing-like process on each side dorsally. Terminal lamellae (lower left figure) with a hook-like tooth dorso-apically.

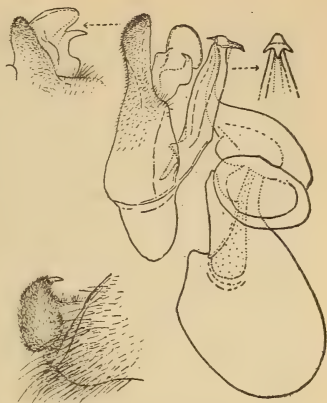
From 2 ♂♂ (type in the South African Museum and paratype in the Transvaal Museum).

Length of body: about 11-11½ mm.

Length of wing: about 12-12½ mm.

Locality: Bushmanland: Jakkalswater (Lightfoot, Oct. 1911) (type). Richtersveld: Brakfontein (van Son, 18 Oct. 1933).

Recognized by its infused wings and relatively poorly developed spots. In the paratype the basal infusion is slightly less extensive, not extending much beyond base of first submarginal cell. This species belongs to the *Chalcamoeba*-group. The wings of this species resemble the wing of *maculipennis* given by Macquart (p. 56 and tab. 20, fig. 4, *Dipt. Exot.*, ii, 1840), but the anal cell and axillary lobe of the latter are much less infused.



TEXT-FIG. 140. Side view of hypopygium, dorso-apical view of apical part of apex and right beaked apical joint, and ventral view of apical part of aedeagus of ♂ *Anthrax phaeopteralis* n. sp. On left below, side view of left terminal lamella projecting from last sternite of ♂ of same species.

Anthrax furvus n. sp.

This smallish species with semi-infuscated wings is characterized as follows:

Body black; buccal cavity and proboscis more castaneous brownish; legs dark blackish brown, the tibiae and tarsi paler, more yellowish brownish. *Vestiture* on head, thorax above and abdomen predominantly black; that in collar, mesopleural tuft and prosternal part with intermixed straw-coloured or yellowish greyish hairs; that in tuft above front coxae tinted fulvous brownish; fine hair-like scaling on disc of thorax and scutellum and flattened scaling on frons gleaming brownish golden; longer hair-like scaling on pleurae also brownish golden in certain lights; scaling on disc of abdomen mostly black, the broader flattened white scaling, as far as this is still present, more or less confined to sides of hind margins of tergites, more densely and more silvery on sides of last two tergites; scaling on venter mostly dark; that on legs also dark, gleaming greyish or brownish in certain lights. *Wings* infused chocolate-brownish in costal cell and anterior basal part up to level of apex of second basal cell and across to apex of costal cell, this infuscation however not clearly marked off, but grading imperceptibly into greyish hyaline apical and hinder parts; the darker infusions on apical cross vein of second basal cell and middle cross vein distinctly spot-like; spot-like indications also at bases of third posterior and second submarginal cells, but no spot at apex of discoidal cell; second vein without a stump at base and base of upper cubital branch also without a stump; middle cross vein very much before middle of discoidal cell; first posterior cell broadly open; axillary lobe narrowish, as broad as anal cell; plumula dark. *Head* with the interocular space in ♀ about 3 times width of tubercle; antennae separated only by a little more than length of joint 1, joint 2 broader than long, sub-barrel-shaped, terminal joint of joint 3 about or a little less than 2 times length of slender part. *Legs* with only a very few small spines on front and middle femora and about 7 spines on hind ones.

From a ♀ in the South African Museum.

Length of body: about 7 mm.

Length of wing: about $7\frac{1}{2}$ mm.

Locality: Namaqualand: between Kamieskroon and Springbok (Mus. Exp., Oct. 1939).

This specimen may prove to be the ♀ of *phaeopteralis*, but as it differs in having the antennae closer together, no stump at base of second vein, the middle cross vein much nearer base of discoidal cell and the axillary lobe much narrower, it is provisionally referred to a separate species.

Anthrax cunctator n. sp.

Body black; narrow hind margins of sides of tergites and sternites pallid or brownish; anterior lateral margins of buccal cavity ivory yellowish; femora blackish brown or dark, tending to be paler below towards apex, the tibiae and tarsi more yellowish. *Vestiture* black on head, thorax above, and on

abdomen; that in collar, propleural and prosternal parts whitish or greyish whitish, with some intermixed black hairs in collar and on front coxal part; mesopleural tuft black, but with intermixed whitish hairs; bristly hairs on coxae mostly black; genital tuft fulvous; scaling on head and fine hair-like ones on thorax and scutellum sericeous yellowish; that on abdomen above mainly black, gleaming greyish in certain lights; flattened white scaling, as far as these are still indicated, concentrated on sides and more so on last two segments; scaling on legs greyish yellowish to brownish. *Wings* as shown in pl. i, fig. 3; the chocolate-brownish infusion more or less grading into the more greyish hyaline part; distinct darker spot-like infusions on all the cross veins, the one on apical cross vein of discoidal cell sometimes very faint; a stump present on both second vein and upper cubital branch; middle cross vein at about middle of discoidal cell; first posterior cell broadly open apically; anal cell tending to be acute apically; plumula whitish or sericeous yellowish, sometimes with an admixture of dark hairs. *Head* with the central furrow in front of ocellar tubercle fairly deep; interocular space in ♀ about 3 times width of tubercle; antennae separated only by length of joint 1, joint 2 disc-shaped, slender part of 3 about $1\frac{1}{2}$ times as long as terminal joint. *Legs* with only 4-6 small spines on front femora, 6 or 7 on middle ones, and about 6-10 on hind ones below.

From 3 ♀♀ in the South African Museum.

Length of body: about $5\frac{1}{2}$ - $7\frac{1}{2}$ mm.

Length of wing: about 8 mm.

Locality: Griqualand West: 26 miles north of Postmasburg (Mus. Exp., Oct. 1939) (type); Niekerkshoop (Mus. Exp., Oct. 1939). Great Karoo: Aberdeen (Mus. Exp., Nov. 1935).

From *furvus* this species is at once distinguished by the more distinct spots on cross veins, stump on second vein, middle position of middle cross vein, more lens- or disc-shaped second antennal joint, etc. The Karoo-specimen differs from the more typical specimens in having more white hair on propleural and prosternal parts, and an entirely whitish plumula.

Anthrax munroi n. sp.

Body very dark blackish brown to black; head below, pleural parts, especially hinder part, hind margins of tergites on extreme sides below and hind margins of sternites more sienna-brownish to yellowish brownish; proboscis and sometimes slender part of antennae castaneous brownish; femora also castaneous brownish to dark brown, the tibiae and tarsi more yellowish. *Vestiture* on head and body above dark blackish brown or black; fine hairs on thorax above tinted reddish brown in certain lights; fine ones on occiput dark fulvous or velvety brown; hair in collar greyish white with intermixed black ones; that in mesopleural tuft whitish and black; that on pleurae tinted dark fulvous or reddish brownish to blackish brown, the propleural tuft also dark fulvous

brownish; hairs on sides of tergites comparatively short, not dense, and tuft on sides of tergite 1 whitish; scaling on frons and face composed of dark and pale ones, the latter more evident anteriorly; fine scaling on thorax sparse, gleaming bronzy, but with dark scales also present; scaling on abdomen composed of fine dark ones and longer, bat-shaped, white ones, the former gleaming greyish or brownish in certain lights, the latter more concentrated on sides and extending right round to below, without any conspicuous patch of silvery scales posteriorly; scaling on venter gleaming greyish yellowish; that on legs dark, gleaming brownish or also greyish yellowish. *Wings* with the anterior and basal part from about middle of axillary lobe to apex of costal cell infused chocolate-brownish, not sharply marked off, but grading into less dark, more greyish hyaline apical and hinder parts, and with distinct darker spot-like infuscations on all the cross



TEXT-FIG. 141. Side view of hypopygium, dorso-apical view of beaked apical joint, and ventral view of apical part of aedeagus of ♂ *Anthrax munroi* n. sp.

veins; veins reddish brownish; second vein with a basal stump; upper cubital branch without a stump; middle cross vein a little beyond middle of discoidal cell; axillary lobe broader than anal cell; plu-mula whitish. *Head* with the interocular space a little more than 2 times width of tubercle in ♂, and about 3 times in ♀; antennae separated by about length of joint 1, joint 2 bead-shaped, broader than long, terminal joint of 3 quite as long as slender part. *Legs* with 2 or 3 small spines on front femora below, 3 or 4 on middle ones and about 5 or 6 on hind ones below. *Hypopygium* of ♂ (text-fig. 141) with the beaked apical joints compressed along their dorsal part; aedeagal complex with a more or less tridentate process apically below. Dorso-apical angles of terminal lamellae not produced hook-like.

From 2 ♂♂ and 1 ♀ (types in the Transvaal Museum and paratype in South African Museum).

Length of body: about $5\frac{1}{2}$ –7 mm.

Length of wing: about 6 – $7\frac{1}{2}$ mm.

Locality: Transvaal: Pretoria (Munro, 21 Oct. 1917) (types); Pretoria (Munro, 13 Dec. 1914).

Easily recognized by its small size, brownish infuscated wings and shortish and sparse hair on sides of abdomen. It can only be confused with *nanus*, from which it however differs in not having the wings uniformly infuscated, less dense hair on sides of abdomen, white tuft at base of abdomen, etc. A distinct variety of it appears to occur in the Karoo and this form is characterized as follows:

Anthrax munroi var. *willowmorensis* n.

Body with the ventral parts paler, more yellowish brown and legs on the whole also paler. *Vestiture* with the hairs on propleural and prosternal parts, pleurae and coxae paler, without any or fewer dark hairs; fine scaling on thorax and scutellum denser, more whitish; bands of white scaling on abdomen above not or scarcely interrupted discally on tergites 2 and 3; scaling on legs paler. *Wings* with the infuscation slightly more extensive in axillary lobe and anal cell, the apical halves of these cells thus not greyish as in typical form; spot-like infuscation on apical cross vein of discoidal cell wanting or very indistinct; second vein originating opposite middle cross vein and not slightly before it and middle cross vein at about middle of discoidal cell.

From a ♀ of this variety in the Transvaal Museum.

Locality: Karoo: Willowmore (Brauns).

Anthrax namaënsis n. sp.

Body mainly black; bare part across base of face more brownish; hind margins of last three tergites and posterior sternites in ♂ more reddish brownish; hypopygium of ♂ yellowish brownish; femora very dark blackish brown or almost black and tibiae paler, more piceous or reddish brownish. *Vestiture* with the hairs fairly dense, mainly black above and below, those in propleural tuft, on coxae and venter more dark mauvish brownish in certain lights; some intermixed hairs on humerus and in mesopleural tuft pale or whitish; plumula greyish whitish; dense anterior part of tuft on sides of tergite 1 white; scaling on frons greyish yellowish; fine scaling on thorax above also yellowish, but with much black scaling; hair-like scaling on pleurae greyish brownish, appearing brownish in certain lights; sparse ones on coxae dull yellowish to yellowish brown; scaling on abdomen above mainly black, but with flattened pearly or silvery white ones in a patch on sides across hind margins of tergites 2 and 3, to a lesser extent on sides of 4 and in ♂ densely and conspicuously across 5-7 on the last two of which they occupy most of the surface; scaling on venter mostly dark; that on legs dark or black, gleaming graphite-like. *Wings* greyish hyaline with the base and more or less anterior half infuscated brownish, the infuscation extending irregularly from near apex of anal and axillary cells across basal part of fourth posterior cell, base and anterior part of discoidal cell, across at least basal half of first posterior cell, across base of upper cubital branch and more or less straight across towards end of costal cell, the hind border of this infuscation not well delimited, but hazy and imperceptibly grading into clearer or less tinged apical and hinder part; spots on cross veins distinct though diffuse and with distinct, clearer or less tinged areas before and just beyond spot on middle cross vein and just before spot at base of third posterior cell; veins reddish brown; base of upper cubital branch with a short stump, the vein itself somewhat angularly bent backwards; middle cross vein just before middle of discoidal cell; lower vein of latter somewhat obtusangularly bent outwards

near apex of cell; squamae whitish, pale-fringed. *Head* with the frons in ♂ rather broadish; interocular space in ♂ broadish, at narrowest part about $3\frac{1}{2}$ times width of ocellar tubercle; antennae widely separated, space between them distinctly more than length of joint 1, joint 2 not flattened, more transverse, about twice as broad as long, joint 3 with its broad base bulb-shaped, not discoidal as in most other species and relatively small, its slender part (including terminal joint) much longer than base, its terminal joint relatively long, more than half length of slender part. *Legs* with the fine hairs on front and middle femora below well developed; all the femora with spines below, those on hind ones numerous and well developed. *Hypopygium* of ♂ (not dissected out) with the apical angles of the clasper-like basal parts produced into prominent broadish prong-like processes.

From a ♂ in the South African Museum.

Length of body: about $10\frac{1}{2}$ mm.

Length of wing: about 12 mm.

Locality: Namaqualand: Kamieskroon (Mus. Staff, Nov. 1936).

The infuscation in the wings of this species resembles that of *diffusus* Wied. and its various forms, but it may at once be distinguished from these by the less flattened second antennal joints, much smaller and less discoid base of third joints, more extensive infusions in first posterior cell, base of fourth posterior cell and in anal cell and also by the distinctly broader and shorter prongs of hypopygium.

Anthrax xerozous n. sp.

Body black; sutural parts of pleurae, hind margins on extreme sides of tergites and those of sternites more castaneous or sienna-brownish; femora very dark or black, their apical parts below slightly more yellowish, the tibiae and tarsi scarcely paler, the front and middle ones however more yellowish. *Vestiture* on head, thorax, scutellum and abdomen above and below mainly black, but with whitish intermixed hairs in collar, in mesopleural tuft and more numerous white hairs in propleural and prosternal parts; tuft on sides of tergite 1 white anteriorly; bristly hairs on coxae predominantly black; hair-like scaling on pleurae greyish whitish or yellowish; fine scaling on sides of thorax above and on head gleaming mostly dull golden or sericeous yellowish; scaling behind eyes whitish; fine scaling on disc of thorax mostly black or dark; that on abdomen above composed of dark and greyish yellowish ones, the former gleaming greyish in certain lights; longer, broader, flattened, white scales across hind margins more concentrated in patches on sides and conspicuous on sides of last three tergites; whitish scaling also on extreme sides of tergites below and across hind margins of sternites; scaling on legs dark, appearing brownish or greyish yellowish in different lights. *Wings* with a chocolate-brownish or coffee-brownish infuscation as shown in pl. i, fig. 5, with the greater part of discoidal cell only obscurely or less tinged than rest of infused part; conspicuous rounded spots on cross veins which are confluent with hind

border of main infuscation; uninfuscated parts of wings greyish hyaline; stumps present on both second vein and upper cubital branch; middle cross vein much before middle of discoidal cell; lower vein of latter zigzag; axillary lobe broader than anal cell; plumula black. *Head* with the interocular space in ♀ nearly 4 times width of tubercle; antennae separated by about twice length of joint 1, joint 2 disc-shaped, terminal joint of 3 about or a little less than a third length of slender part. *Legs* with numerous spines on all the femora below.

From 2 ♀♀ in the South African Museum.

Length of body: about 9–10 mm.

Length of wing: about $11\frac{1}{2}$ –12 mm.

Locality: South-West Africa: Gaub in Damaraland (Lightfoot, Jan. 1919) (type). Namaqualand: Steinkopf (Mus. Exp., March 1935).

The type-specimen was labelled as *Anthrax hessii* Wied. by Bezzi. From the latter species it differs, according to Wiedemann's description (p. 289, *Ausser-europ. Zweifl. Ins.*, i, 1828) and from specimens of the latter before me, in having a more extensive wing-pattern which is less broken up, no very dense deep golden or yellowish hair-like scaling above, less whitish hair below, etc. From *diffusus* Wied. it differs in the more extensive infuscation in the wings, more clouded or infused discoidal cell, darker legs, and relatively shorter terminal joint of antennal joint 3. From *namaënsis* which has a similar infuscation in wings it differs in having more of the discoidal cell infuscated, larger spots on cross veins, much broader and more discoidal base of third antennal joints, more flattened second joints, more pale scaling on body below, etc.

Anthrax aridicolus n. sp.

This species resembles *xerозous* very closely, but differs from it in the following respects:

Vestiture with distinctly more white hairs or even mainly white in collar region, humeral part and on propleural part above front coxae; genital tuft in ♀ paler fulvous. *Wings* with a similar type of infuscation, but with the clear spot at base of first posterior cell tending to be fainter, smaller and more obscure; spot-like infuscations on cross veins along margin of main infuscation smaller and with an additional or fourth spot on lower vein of discoidal cell; middle cross vein nearer or at about middle of discoidal cell; axillary lobe comparatively less broad, only a little broader than anal cell; second vein originating just a little in front of middle cross vein. *Head* with the antennae slightly wider apart, quite twice length of joint 1; terminal joint of joint 3 about a third or fourth length of slender part. *Legs* with relatively fewer spines on front and middle femora below; tibiae and tarsi tending to be paler, more yellowish, and hind tarsi as pale as the others.

From 4 ♀♀ in the South African Museum.

Length of body: about 7–10½ mm.

Length of wing: about $7\frac{1}{2}$ –12½ mm.

Locality: Namaqualand: Knersvlakte (Mus. Exp., Oct. 1939) (type). Bushmanland: between Springbok and Pella (Mus. Exp., Oct. 1939). Karoo: Calvinia (Mus. Exp., Sept. 1936).

The four spots along hind border of main infuscation characterize this species, and its more extensive infuscation, clouded discoidal cell and tendency for spot at base of upper cubital branch to fuse with main infuscation distinguish it from other forms with four spots described farther on.

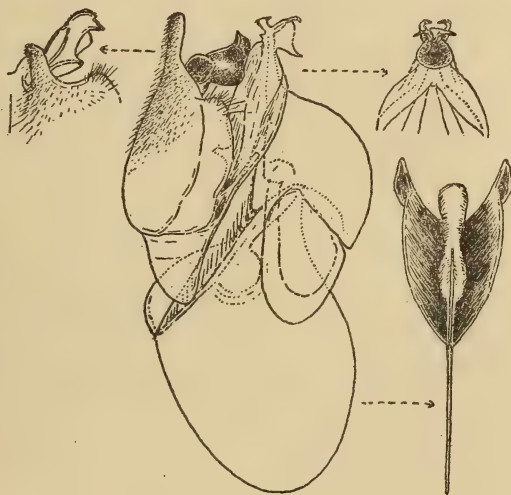
Anthrax diffusus Wied.

(Wiedemann, p. 291, *Aussereurop. Zweifl. Ins.*, i, 1828.)

As there are several species having a similar type of wing-pattern it would be necessary to examine Wiedemann's original type-material in order to establish the true specific identity of this species. By a careful comparison of his description with the various species belonging to this *diffusus*-group it is, however, possible to eliminate those that obviously do not agree in all respects with his description. By such comparisons and from certain specimens labelled as *diffusus* by Bezzi it is quite evident that Bezzi confused this species with certain other species of Wiedemann and with certain forms which are most certainly new. There is no doubt that a careful examination of the various specimens referred to *diffusus* Wied. by Bezzi in his publications on African species (p. 621, *Trans. Ent. Soc. Lond.*, 1911; p. 123, *Ann. S. Afr. Mus.*, xviii, 1921; p. 83, *Broteria* (Ser. Zool.), xx, 1922; p. 161, *The Bombyliidae of the Ethiopian Region*, 1924) will prove that he confused other and very similar forms with Wiedemann's species. By a process of elimination and a careful comparison with Wiedemann's description the specimens described below are provisionally referred to *diffusus* s. str. The species is characterized as follows:

Body black; area below antennae at base of face, head below and sutural parts of pleurae to a variable extent more castaneous or yellowish brownish; hind margins of tergites on extreme sides below and hind margins of sternites and in ♂ last sternite also reddish or castaneous brownish to a variable extent; coxae and femora dark blackish brown to castaneous brownish, their lower surfaces and lower apical part paler, more yellowish or reddish brownish, the tibiae and tarsi paler, more yellowish, but apical parts of tarsi dark. *Vestiture* above and below and on coxae predominantly very dark blackish brown or black, with however numerous intermixed whitish or greyish white hairs in collar, propleural and mesopleural tufts; anterior dense brush-like part of tuft on sides of tergite 1 white; tufts on sides of other tergites dense and conspicuous; hairs on venter, especially on sides, with a dark brownish tint in certain lights; genital brush of ♀ yellowish fulvous; short flattened scales on head in front greyish yellowish to pale brownish yellowish; those behind eyes gleaming more whitish; fine, short, hair-like scaling on thorax above mainly black, but with some dull greyish gleaming ones also present on sides and at base; that on abdomen also mainly black, some of them however gleaming greyish yellowish;

scaling on venter mainly dark; sparse, longer, hair-like scaling on pleurae gleaming greyish yellowish or brownish yellowish only in certain lights; short, flattened, silvery scales at apex of scutellum; broader, truncated, cuneiform, silvery whitish scales across hind margins of tergites denser on sides, interrupted discally along midline and also laterally on each side, those on sides of last three tergites in ♂ very dense, directed backwards and those on last tergite scarcely or very narrowly interrupted discally, those on sides of last two tergites in ♀ equally dense; the white scaling on tergites extending right round between black tufts; scaling on legs dark, gleaming greyish or brownish, appearing



TEXT-FIG. 142. Side view of hypopygium, dorso-apical view of right beaked apical joint, ventral view of apical process of aedeagus, and postero-dorsal view of basal strut of ♂ *Anthrax diffusus* Wied.

more black on femora above. *Wings* (pl. i, fig. 7) with the chocolate-brownish to blackish brown infuscation and spots as shown in figure, usually with a constant clear area or window at base of first posterior cell; the three spots usually isolated though the one at base of third posterior cell sometimes tends to fuse with main infuscation; a clear gap however always present in front of spot at base of upper cubital branch; bases of both second vein and upper cubital branch with a stump; middle cross vein at about or just a little before middle of discoidal cell; first posterior cell markedly narrowed apically; axillary lobe very much broader than anal cell; plumula black. *Head* with the interocular space about $3\frac{1}{2}$ –4 times width of tubercle; antennae separated by about twice, or a little more, length of joint 1; joint 2 disc-shaped; slender part of joint 3 about 2 – $2\frac{1}{2}$ times length of terminal joint. *Legs* with numerous spines on all the femora below, those on hind ones stouter, longer, more or less duplicated basally below. *Hypopygium* of ♂ (text-fig. 142) with the apical part of

basal parts produced prong-like; beaked apical joints with their apical parts slightly recurved outwardly, more or less bidentate, their lower margin flattened and apical part of upper margin finely crenulate; aedeagal complex with a tridentate ventral process apically, two inwardly curved hook-like processes at its apex and a broadish sucker-like structure ventrally; lateral struts and medial basal one well developed, the dorso-basal part of the latter with a broad flange-like wing on each side (lower right figure). Dorso-apical angles of terminal lamellae in last sternite produced into a sharp hook-like process.

In the Transvaal and South African Museums.

Length of body: about $7\frac{1}{2}$ – $11\frac{1}{2}$ mm.

Length of wing: about 9– $13\frac{1}{2}$ mm.

Locality: South-western Cape, Eastern Cape, Basutoland and Natal.

The species appears to be very variable and several forms of it which differ in the colour of the vestiture and to a certain extent even in the wing-pattern are present in the collections before me. Some of these merit description even though transitional forms are also found.

Anthrax diffusus f. *pallidulus* n.

These specimens (9 ♂♂ and 5 ♀♀) have certain characters which are fairly constant and which distinguish them from the typical *diffusus*.

Body with the paler parts even paler castaneous and hind margins of tergites and sternites more broadly pale yellowish reddish; legs on the whole paler, especially tibiae and tarsi. *Vestiture* with more numerous whitish or straw-coloured hairs in collar, on humerus, in mesopleural tuft, propleural and prosternal parts (the hair on these latter pleural parts even predominantly pale); bristly hairs on front coxae usually with some or numerous reddish golden or reddish fulvous ones; hair on venter predominantly or entirely pale, not dark or black, usually with reddish or pinkish gleams in certain lights; some hairs or bristles in hinder part of white tuft on sides of tergite 1 and sometimes also in the other tufts on sides gleaming reddish or brownish; scaling with distinctly more pale ones in addition to black ones on body above; the fine ones on thorax above, especially on sides, and at base gleaming golden or brownish golden; that on abdomen not predominantly black, but with much pale scaling, yellowish or brownish golden ones more or less transversely across tergites, especially laterally; longish hair-like scaling on pleurae and coxae much paler, gleaming pale reddish or pinkish in certain lights; flattened scaling on venter white; that on legs with more pale ones.

Types of form in South African Museum and paratypes in British Museum.

Length of body: about 8–13 mm.

Length of wing: about $8\frac{1}{2}$ –15 mm.

Locality: South-western Cape, Namaqualand, Karoo, Basutoland and Orange Free State. Types from Montagu (Tucker, Oct. 1919) (holotype) and Murraysburg Dist. (Mus. Exp., March 1931) (allotype).

This form of *diffusus* appears to frequent the drier and more inland parts of the Union whereas the typical form is met with in the southern and eastern coastal belt.

Anthrax diffusus f. *hybridus* n.

This form may also be considered as merely a racial form of the form *pallidulus* for it is closer to the latter than to the typical form. From the typical form of *diffusus* it differs in having more pale hair in collar, on humeral part, in mesopleural tuft, propleural part and on pleurae; in having the hair on venter usually pale-tipped; more pale scaling on body above; distinct yellowish scaling on abdomen above and mainly pale scaling on body below; and in having a distinct fourth spot on lower vein of discoidal cell in many specimens. From the form *pallidulus* it differs in having more intermixed dark or black bristly hairs in collar, on humerus, in propleural and prosternal parts and in mesopleural tuft; usually no reddish gleaming bristles on front coxae or any of the other coxae; not entirely pale, but pale-tipped, hairs on venter; and above all in the presence of a distinct fourth spot in hyaline part of wings.

From 10 ♂♂ and 7 ♀♀ (types of form in South African Museum).

Length of body: about $7\frac{1}{2}$ – $11\frac{1}{2}$ mm.

Length of wing: about 8–13 mm.

Locality: North-western Karoo: Augusfontein near Calvinia (Mus. Exp., Sept. 1947) (types). Koup Karoo: Lammerkraal in Prince Albert Dist. (Mus. Exp., Sept. 1947); Oukloof in Beaufort West Div. (Mus. Exp., Jan. 1949); Koup Siding (Mus. Exp., Oct. 1949). North-eastern Cape: Dreunberg in Albert Dist. (Mus. Exp., Nov. 1939). Namaqualand: Klipvlei near Garies (Mus. Exp., Nov. 1931). Western Cape: Olifants River Valley between Citrusdal and Clanwilliam (Mus. Exp., Nov. 1931); Bulhoek between Klawer and Clanwilliam (Mus. Exp., Oct. 1950); Het Kruis (Mus. Exp., Oct. 1947). Little Karoo: Ladismith (Guillarmod, Sept. 1948).

Anthrax diffusus f. *suffusipennis* n.

Still another form of *diffusus* is present in the collections before me. From the typical form of the latter it differs in the following respects:

Body dark chocolate-brownish or dark reddish brown, paler below and on extreme sides below; legs reddish brownish, the tibiae and tarsi more yellowish. *Vestiture* mainly dark blackish brown, but with numerous intermixed whitish hairs in collar, mesopleural tuft, propleural tuft and front part of front coxae; anterior part of tuft on tergite 1 also white; scaling greyish brownish on head; that on thorax above composed of fine black and dull brownish golden ones; that on abdomen above dark, but gleaming greyish brownish in certain lights; snow-white scaling arranged as in typical form, but more lanceolate in shape; fine hair-like scaling on pleurae gleaming greyish and whitish; scaling on legs also gleaming greyish to greyish brownish. *Wings* with the infuscation paler, more yellowish or reddish brown, more diffuse, not well marked off, grading

into clearer, more greyish hyaline part, the clearer spots at base of first posterior cell and in front of upper cubital branch hazy; spot-like infuscations on cross veins, especially the three along border of main infuscation, fainter, more diffuse or hazy; second vein tending to originate a little or much in front of middle cross vein. *Antennae* with the terminal joint of joint 3 relatively much longer than in typical form, the rod-like part about $1\frac{1}{2}$ times as long as terminal joint.

From 2 ♂♂ and 1 ♀ (types in the South African Museum and paratypes in the Transvaal Museum).

Length of body: about $4\frac{1}{2}$ –6 mm.

Length of wing: about 5 – $7\frac{1}{2}$ mm.

Locality: Namaqualand: Bowesdorp (Mus. Exp., Nov. 1931) (holotype). Southern Karoo: Montagu (Barnard, Oct. 1919) (allotype). Karoo: Willowmore (Brauns, Sept. 1917).

Anthrax diffusus f. *fuscopurpuratus* n.

This is still another distinct form of *diffusus* which is characterized as follows:

Body tending to be more dark blackish brown or dark castaneous than black; pleural parts and venter distinctly dark castaneous or mahogany brownish; hind margins of last two tergites, extreme sides of other tergites and to a certain extent hind margins of sternites paler, more reddish; legs dark piceous or reddish brownish, the tibiae and tarsi more yellowish. *Vestiture* with the hair in tuft above front coxae, on coxae, pleurae and venter dark mauvish brown in certain lights, even hair on thorax above tinted dark mauvish brown in certain lights; tuft on sides of tergite 1 however whitish; fine scaling on abdomen above dark, but gleaming greyish brownish; hair-like scaling on pleurae also dark, but gleaming greyish, especially on coxae; scaling on venter mostly hair-like, gleaming whitish, especially across hind margins of sternites. *Wings* with the dark chocolate-brownish infuscation comparatively more extensive than in typical form, with the basal three-quarters or even greater part of discoidal cell included in infuscation; rounded spot at base of third posterior cell confluent with main infuscation, not isolated as in typical form and with only a small clear spot in front of it; rounded spot at apex of discoidal cell also partly attached to main infuscation. *Hypopygium* of ♂ with the upper apical angle of beaked apical joints more rounded and not so sharply pointed as in *diffusus* s. str.

From 2 ♂♂ (type of form in the Transvaal Museum).

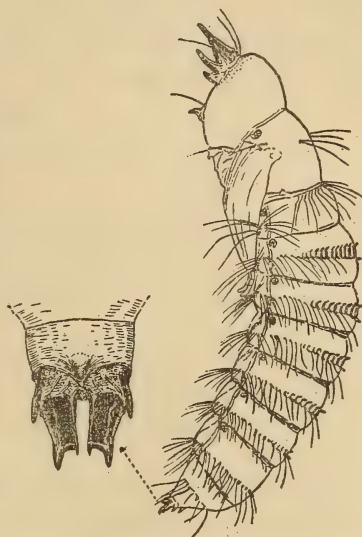
Length of body: about 7–8 mm.

Length of wing: about 9 mm.

Locality: South-eastern Cape: Humansdorp (Brauns, 2 Dec. 1932).

The wing-pattern of this form resembles that of *xerous* to some extent, but it is slightly less extensive and the middle cross vein is nearer middle of discoidal cell. The dark hair and scaling on pleural parts and the reddish piceous legs also distinguish it.

Anthrax diffusus parasitizes certain solitary bees and wasps. One ♀-specimen in the South African Museum collection, which was presented by Mr. R. Dekenah of Cape Town, hatched out of the thimble-like mud-nest which a certain species of *Megachile*-bee makes in sandy soil. Its pupal case is shown in text-fig. 143. This pupa is characterized by the presence of six strong, blackish brown, chitinous, cephalic spines projecting forward and by a spinous caudal process at the extremity of the body. The two innermost or medial cephalic spines are the longest and more or less triquetrous in section, their lower and lateral edges sharply carinate and at base of each there is dorsally a small knob-like prominence. The two outermost spines are the shortest and somewhat curved upwards apically. On the facial side of the head there is medially and a little distance away from the cephalic spines a pair of shorter, blackish brown, dentate spines. The body consists of a cephalic segment, a thoracic part bearing the wing- and leg-rudiments, a metanotal segment, seven abdominal segments and the caudal process. On each side submedially the metanotal segment has a transverse row of 19 long, chitinous, bristle-like filaments. Each of the first 5 abdominal segments has a transverse row of embedded, staple-like rods across the middle discally, decreasing in size and prominence from 1 to 5; each rod has its anterior and posterior ends raised upwards in the form of a spine. On tergite 6 the staple-like rods are represented by a transverse row of single spines on the disc. In addition to the spines on the abdomen, and in line with the hindmost spines, there is a transverse row of bristles on the sides, which on tergite 6 are more conspicuous. A transverse row of similar bristles is also found segmentally on the lateral fold and across the hinder parts of sternites. Similar, but fewer, bristles are also present on head and thorax. Tergite 7 has no spines, but only a transverse row of bristles, mostly on the sides. The caudal process is in the form of two projecting prongs, at the base of each of which there is a dorsal and a ventro-lateral dentate process. Basally below each is another small dentate process. The inner upper margins of the prongs are sharply carinate. Medially above, just in front of the bases of the prongs, this caudal segment also has a single backwardly directed, flattened, dentate process. Length of empty pupal case 16.5 mm. and its breadth about 4 mm.



TEXT-FIG. 143. Side view of pupal case and dorsal view of its caudal spines of *Anthrax diffusus* Wied.

Another ♀-specimen from Natal in the collections of the Transvaal Museum is a teneral form with an almost unrecognizable wing-pattern, but which also appears to belong to this species. This specimen is accompanied by a very similar

pupal case and is labelled as 'parasitical on wasp larva bred from nest'. This label probably refers to a species of mason-wasp, probably a Eumenid, representatives of which are also parasitized by species of *Anthrax* in Europe. This latter pupal skin differs from the one described above in having the caudal prongs slightly longer and the transverse row of tergal spines on segment 5 also single like those on 6.

Anthrax tetraspilus n. sp.

(Syn. = *hessii* Bezzi, nec Wiedemann, p. 123, *Ann. S. Afr. Mus.*, xviii, 1921.)

From Wiedemann's description of *hessii* (p. 289, *Aussereurop. Zweifl. Ins.*, i, 1828) it is quite evident that the specimens so determined by Bezzi do not belong to that species. According to Wiedemann the costal cell and basal third of wings only are infuscated and in addition there are four spots on cross veins. Moreover the hair-like scaling on body above is denser and more golden to reddish or brownish golden. In view of these differences these specimens, together with other examples, are referred to a new species with the following characters:

Body black; sutural parts on pleurae and venter usually more castaneous brownish; hind margins of tergites on extreme sides and those of sternites fairly broadly paler, more yellowish or yellowish brownish; coxae and femora dark brown, blackish brown to black, the under surfaces and apices of latter usually paler, the tibiae and tarsi more yellowish and apical parts of tarsi dark. *Vestiture* above and below black; intermixed hairs in collar, propleural and prosternal parts and numerous ones in mesopleural tuft whitish; tuft on sides of tergite 1 mainly white, its hinder part with black hairs; ♀-genital tuft and hooked bristles fulvous to reddish or brownish golden; small, flattened scaling on head gleaming greyish yellowish or yellowish, more whitish behind eyes; fine scaling on thorax and scutellum composed of black and sericeous yellowish, brassy, or even whitish ones, the pale ones more evident on sides, at base and in form of two indistinct discal bands; hair-like scaling on pleurae mainly greyish yellowish to whitish; fine scaling on abdomen composed of flattened greyish yellowish to brownish gleaming ones and black hair-like ones, the latter more or less arranged transversely across bases and along middle of tergites; broader, flattened, snow-white scales present on sides, but also as two submedial patches on tergites 2-5, especially in ♀, those on sides extending right round between black tufts and those on sides of 5-7 in ♂ and 6 and 7 in ♀ dense and silvery, leaving only a narrow discal part free; scaling on venter mainly whitish; that on legs dark or black on femora above, gleaming greyish in certain lights. *Wings* with the chocolate- or coffee-brownish infuscation as shown in pl. i, fig. 6, with a constant, large clear gap or spot at base of first posterior cell and greater part of or at least apical half of discoidal cell usually less tinged or even clear; four more or less distinct spots present, of which one on lower vein of discoidal cell is characteristic; stumps present at bases of second vein

and upper cubital branch; latter with a fairly deep loop; middle cross vein just or a little before middle of discoidal cell; lower vein of latter with a sharp bend; axillary lobe much broader than anal cell; plumula brownish fulvous to black. *Head* with the interocular space about $3-3\frac{1}{2}$ times width of tubercle in ♂ and about $4-4\frac{1}{2}$ times in ♀; antennae separated by about 2 times length of joint 1; joint 2 disc-shaped; terminal joint of 3 about half or a little less than half length of slender part. *Legs* with some spines on front femora below and numerous ones on middle and hind ones. *Hypopygium* of ♂ (text-fig. 144) much like that of *diffusus*, but recurved apical parts of beaked apical joints much longer, more spine-like, not bidentate apically; sucker-like ventral structure below apical part of aedeagal complex longer. Dorso-apical angles of terminal lamellae not produced spine-like; their lower part without hairs, only a brush present on outer apical aspect.

From 3 ♂♂ and 9 ♀♀ (types in the South African Museum, paratypes in the British Museum and Transvaal Museum).

Length of body: about $7-11\frac{1}{2}$ mm.

Length of wing: about $7\frac{1}{2}-13\frac{1}{2}$ mm.

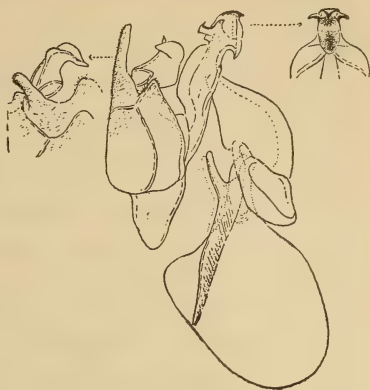
Locality: Namaqualand: O'okiep (Lightfoot, Sept. 1890) (types); Kamieskroon (Mus. Exp., Sept. 1930); Gifberg near Vanrhynsdorp (Sept. 1911). West Cape: Pakhuis Pass near Clanwilliam (Mus. Exp., Sept. 1936 and 1942); Wupperthal, Krakadouw Pass (Mus. Exp., Sept. 1936). Ceres Karoo: Ceres (Turner, 1 Nov. 1924). Karoo: Willowmore (Brauns, 20 Dec. 1923).

Easily recognized by the four constant spots in wings. It resembles *diffusus* f. *hybridus*, but differs in having entirely dark hair on venter, less numerous pale scaling on abdomen above, less widely separated antennae, more recurved end of second vein and having spine-like apices to beaked apical joints.

Anthrax rhodesiënsis n. sp.

The wing-pattern of this large species also resembles that of species and forms belonging to the *diffusus*-group. There are, however, important differences which distinguish it from the others.

Body black; legs dark blackish brown, the tibiae and tarsi slightly paler. *Vestiture* predominantly black; anterior part of collar mostly white and with numerous white hairs also in propleural and mesopleural tufts and with anterior part of tuft at base of abdomen also white; scaling on frons whitish and greyish



TEXT-FIG. 144. Side view of hypopygium, dorso-apical view of right beaked apical joint, and ventral view of apical part of aedeagus of ♂ *Anthrax tetraspilus* n. sp.

yellowish; that behind eyes white; fine hair-like scales on body above mainly black and those below also black; silvery white scales on abdomen denser and longer on sides, more or less separated discally on hind margins of tergites 2-5 and also submedially on each side by more slender and shorter greyish scales and medially by black or dark ones; silvery white scaling dense and conspicuous on sides of last two tergites and the white scaling on all the tergites does not extend right round to venter; scaling on legs dark or black. *Wings* (pl. i, fig. 8) with the dark chocolate-brown infuscation occupying more or less oblique basal half, leaving only an obscure clear spot at base of first posterior cell; isolated spot-like infuscation at apex of discoidal cell smaller than rounded spots at bases of third posterior and second submarginal cells, the former spot confluent with main infuscation; a small or minute spot also indicated on lower vein of discoidal cell; bases of both second vein and upper cubital branch with a stump; middle cross vein a little before middle of discoidal cell; axillary lobe much broader than anal cell; plumula black. *Head* with the frontal furrow shallow; interocular space in ♀ about 4 times width of tubercle; antennae separated by a little more than $2\frac{1}{2}$ times length of joint 1; joint 2 disc-shaped; terminal joint of 3 a little less than a third length of slender part. *Legs* with spines on all the femora, those on hind ones strongly developed and more or less duplicated basally.

From a ♀ in the South African Museum.

Length of body: about $11\frac{1}{2}$ mm.

Length of wing: about 13 mm.

Locality: Southern Rhodesia: Salisbury (Cuthbertson, 15 Sept. 1939).

Anthrax eurypterus n. sp.

This very striking and handsome black species is characterized as follows:

Body black, the pleural sutures more dark brownish; legs very dark piceous or reddish brown, the tibiae and tarsi slightly paler; integument of scutellum, abdomen above and pleurae somewhat shiny. *Vestiture* with the hair on body above and below predominantly black, only some hairs in anterior part of collar, some intermixed ones in mesopleural tuft and anterior part of dense brush-like tuft on sides of tergite 1 white; black hairs on sides of abdomen very dense and shaggy, especially in ♂; scaling on frons and face sparse, greyish yellowish; fine scaling on thorax and abdomen above as well as that on body below black; hind margin of tergite 2 on sides with silvery white scales which do not extend right round to inflexed part, and extreme sides of tergite 5 and entire 6 and 7 (excepting only middle part) in ♂ with elongated, flattened, very brilliantly shining, silvery white scales which are very conspicuous and transversely arranged; scaling on legs mainly black, gleaming graphite-like. *Wings* remarkably broad in relation to length, shining, iridescent, infuscated very dark chocolate-brownish, more or less dimidiately so in ♂ and more extensively so in ♀ (pl. i, fig. 4); infuscation in ♂ extending from apices of axillary and anal

cells obliquely across basal part of fourth posterior cell, across basal half and more or less anterior apical half of discoidal cell, across about basal third of first posterior cell obliquely across to costal cell; infuscation in ♀ as shown in pl. i, fig. 4, also extending from apices of axillary and anal cells, but also including to a variable extent greater part of fourth posterior cell and almost basal half of third posterior cell and entire discoidal cell; darker spots present on all the cross veins in both sexes and without any distinct clearer spots or areas in the infuscated part excepting only the greyish prediscoidal spot; veins dark reddish brown; discoidal cell markedly broad and shortish, distinctly dilated apically, both its upper and lower veins bent outwards near apex and the apex itself somewhat truncate; middle cross vein before middle of discoidal cell and more or less opposite bend at base of third posterior cell; upper cubital branch with a distinct stump at its basal bend; squamae brown, brown-fringed; halteres and their knobs brown. *Head* with the interocular space in front of ocellar tubercle at narrowest part about 2 times width of tubercle in ♂ and 3 times in ♀; frons broadish; antennae rather wide apart, space between them about $2-2\frac{1}{2}$ times length of joint 1; joint 2 short, flattened, disc-shaped and very much broader than long; broad base of joint 3 conspicuously dilated, especially in ♀, only a little shorter than slender part in ♂, but longer in ♀ and terminal joint of slender part very short and small. *Legs* with about 3-5 or even 9 spines on middle femora below and about 6-10 on hind ones; front and middle tarsi markedly shorter than tibiae, but hind ones in ♂ subequal in length to tibiae but in ♀ only a little shorter than tibiae; scales on legs rather longish and well developed. *Hypopygium* of ♂ (parts visible in undissected state) with the apical angles of the pair of clasper-like basal parts not produced prong-like as in ♂♂ of the *diffusus*- and *pusillus*-sections.

From a ♂ and ♀ in the South African Museum.

Length of body: about $7-7\frac{1}{2}$ mm.

Length of wing: about $7\frac{1}{2}$ mm.

Locality: Koup Karoo: between Klaarstroom and Prince Albert (Mus. Exp., Oct. 1952) (holotype). Griqualand West: Vryburg (Mus. Staff, Oct. 1939) (allotype).

A very characteristic and striking species characterized by its broadish, and more or less dimittately infuscated wings, shortish and dilated discoidal cell, posterior patch of brilliant silvery white scales in ♂, predominantly black hair on body, etc.

Anthrax pusillus Wied.

(Wiedemann, p. 318, *Aussereurop. Zweifl. Ins.*, i, 1828; Bezzi, in part, p. 123, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 166, *The Bombyliidae of the Ethiopian Region*, 1924.)

This species is a representative of a number of species dealt with in the following pages and which have a similar type of wing-pattern. It is characterized as follows:

Body black; lower parts sometimes more castaneous brownish; hind margins of tergites on extreme sides below and at hinder part of body (sometimes all tergites) and in ♂ sides of last two tergites and hind margins of sternites yellowish reddish to a variable extent; femora yellowish brown, dark, or even black, their lower surfaces and apical parts usually paler, the tibiae and tarsi more yellowish. *Vestiture* above and below mainly black, but with numerous whitish or straw-coloured hairs in collar, on humerus, propleural and prosternal parts and in mesopleural tuft; hairs in propleural and prosternal tufts and on front coxae sometimes with a fulvous, brownish fulvous or mauvish tint; tuft on sides of tergite 1 snow-whitish, but with black hairs across its hind margin; scaling on head and fine ones on thorax and scutellum above greyish, greyish yellowish, that on latter two parts even dull yellowish, white on apex of scutellum; hair-like scaling on pleurae and coxae gleaming greyish whitish, greyish yellowish to pale brownish yellowish in certain lights; scaling on abdomen above dense, mostly dull ochreous yellowish or greyish yellowish, sometimes inclining to whitish, but with very fine hair-like dark or black ones also present, especially discally across basal part of tergite 2; flattened, silvery white scaling mostly concentrated on sides, becoming less broadly interrupted discally from tergite 2 to apex, very dense and scarcely interrupted discally on last three segments in ♂ and last two in ♀ where these scales are more brilliant; scaling on venter greyish yellowish or whitish, that on extreme sides sometimes dull ochreous yellowish; scaling on legs gleaming dull ochreous yellowish, pale yellowish brownish to greyish whitish. *Wings* with the anterior basal part infuscated yellowish brownish, coffee-brownish to chocolate-brownish, the infuscation extending obliquely across from about middle of axillary lobe, across basal vein of fourth posterior cell, across base of discoidal cell to spot on middle cross vein and then across basal part of first submarginal cell to near apex of costal cell, sometimes however with a slight cloudiness also in basal part of first posterior cell; rest of wings vitreous hyaline or clear, but usually with faint or more distinct spot-like infuscations at bases of third posterior cell and upper cubital branch and occasionally with a faint indication of a spot also on apical cross vein of discoidal cell; base of upper cubital branch usually with a stump; middle cross vein usually a little before middle, sometimes at middle, of discoidal cell; lower vein of discoidal cell usually with a subangular bend hindwards; axillary lobe much broader than anal cell; plumula whitish or brownish. *Head* with the interocular space about $2\frac{1}{4}$ –3 times width of tubercle in ♂ and about 3–4 times in ♀; antennae separated by a little more than length or sometimes even twice length of joint 1; joint 2 disc-shaped; slender part of joint 3 relatively short, about $1\frac{1}{2}$ –2 times as long as terminal joint, that of ♂ the shorter. *Legs* with spines on all the femora below. *Hypopygium* of ♂ (text-fig. 145) with the apical part of basal parts produced prong-like, these rather broadish; beaked apical joints as in figures; aedeagal complex with a tridentate ventral process apically, without a sucker- or disc-like extension below. Dorso-apical angles of terminal lamellae produced spine-like.

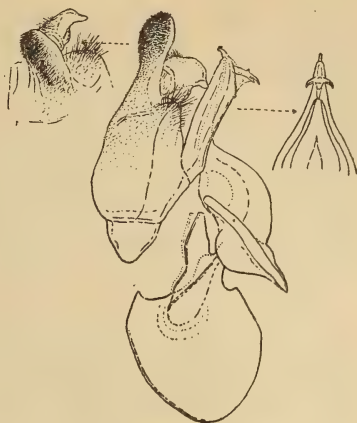
In the South African Museum, Transvaal Museum and Commonwealth Institute.

Length of body: about 5–8½ mm.

Length of wing: about 6–10 mm.

Locality: Koup Karoo, Moordenaars Karoo, Tankwa Karoo, Great Karoo, Eastern and North-eastern Karoo, Nieuveland Karoo, Namaqualand and Griqualand West.

Easily recognized by its half-infuscated wings and two spots on cross veins in hyaline part. This species is very widely distributed in the drier parts of South Africa and is variable in size and the extent of its wing-pattern which sometimes resembles that of *diffusus*. From forms of the latter it may at once be distinguished by the presence of much pale or dull yellowish scaling on abdomen, more conspicuous reddish hind margins of posterior tergites and of the sternites, less widely separated antennae, absence of or a much fainter spot on apical cross vein of discoidal cell, etc.



TEXT-FIG. 145. Side view of hypopygium, dorso-apical view of right apical joint, and ventral view of apical part of aedeagus of ♂ *Anthrax pusillus* Wied.

Anthrax simillimus n. sp.

A single ♂-specimen in the South African Museum collections before me so closely resembles *pusillus* that it may almost be considered as representing an extreme variety of that species. The differences in its wing-characters are however so obvious that it deserves a separate specific rank. It differs from *pusillus* in the following respects:

Head with the antennae closer together, the space between them scarcely or only about as wide as length of antennal joint 1; joint 2 slightly longer, less flattened or disc-shaped; slender part of joint 3 distinctly longer than in *pusillus*, at least twice length of broad base, its terminal joint distinctly shorter nearly a third length of slender part and not only a little shorter than slender part as in ♂ of *pusillus*. *Wings* with the infuscation less extensive, extending from a little less than (or about) half of axillary lobe across to a point on costal cell which is distinctly a little short of level opposite base of upper cubital branch (in *pusillus* it is opposite); first submarginal cell is clear basally, not extensively infused in basal part; only one faint spot-like infusion present on basal cross vein of third posterior cell which is much fainter, without any spot at base of second submarginal cell; base of latter slightly less at right angles and without a stump; costal cell relatively shorter; apical cross vein of discoidal cell relatively longer and more oblique and the backward bend on lower vein of latter cell less sub-

angular; base of first basal cell and also just before base of first submarginal cell with distinct clear or less infuscated spots or areas, not evident in *pusillus*. *Vestiture* very similar, but the bands of white scales across hind margins of tergites 2-3 on sides and across last three distinctly duller or more cretaceous whitish, not silvery; fine scaling across basal part of tergite 2 more yellowish or greyish, not black, the latter arranged more across the middle and apparently there are more pale scales on tergites above than in *pusillus*; hairs and hair-like scales on propleural and pleural parts on the whole paler, more whitish or with fewer dark elements.

Length of body: about 8 mm.

Length of wing: about $9\frac{1}{2}$ mm.

Locality: Koups Karoo: Oukloof in the Nieuveld Escarpment (Beaufort West Div.) (Zinn and Hesse, Mus. Exp., Jan. 1949).

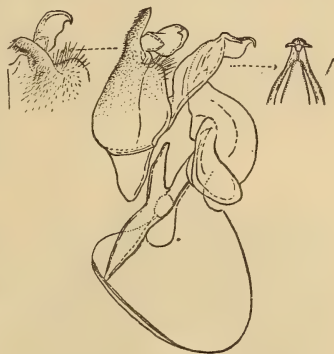
A ♀-specimen (with a body-length of $9\frac{1}{2}$ mm. and a wing-length of about 10 mm.) in the South African Museum from the Great Karoo (Murraysburg Dist. (Mus. Staff, March 1931)) which has a very similar wing-infuscation and venation, similar dull cretaceous-white scaling on abdomen, similarly shaped third antennal joints with a relatively longish slender part and similar hairs and hair-like scales on pleural parts probably represents the ♀ of this species. It however has the antennae as widely separated as in ♀ *pusillus* and its costal cell not so short as in ♂.

Anthrax caffer n. sp.

(Syn. = *pusillus* Bezzi, in part, nec Wiedemann, p. 123, *Ann. S. Afr. Mus.*, xviii, 1921.)

The wing-pattern of this species is almost identical with that of the var. *leucogaster* Meig. of the Palaearctic species *trifasciatus* Meig. as described and figured by Sack (p. 530 and pl. 22, fig. 4, *Abh. Senckenb. Natur. Ges.*, 30, 1909) and by Engel (pp. 435-6 and pl. viii, fig. 108, *Die Fliegen d. Pal. Reg.*, lief. 99, 1936). When compared with the descriptions of these authors the specific similarity is also very close. These specimens have however no tufts of white hair on extreme sides of the tergites below, the clear gap or indentation in front of infuscation on middle cross vein is less extensive, and the hypopygium of ♂ as figured by Sack and Engel appears to differ in not having a ventral tridentate extension apically below aedeagal complex. There is however a possibility that these specimens merely represent a South African form or variety of *trifasciatus* or *leucogaster*. Only a careful comparative study of both Palaearctic and Ethiopian species of *Anthrax* will however settle this point. In view of the fact that few, if any, Palaearctic species of Bombyliidae are found so far south, these insects are provisionally referred to a new species. One ♂-specimen (from Hex River, 10 Jan. 1882) was questionably labelled as '*Anthrax pusilla*' by Bigot and was subsequently referred to as such by Bezzi without further verification. The characters of this species are as follows:

Body mainly black; hind margins of tergites on extreme sides below, or even sides below (δ) and hind margins of sternites (especially δ) and in δ also hind margins and sides of last few tergites reddish brownish or sienna-brownish; femora black or dark reddish brown, their lower surfaces sometimes paler, the tibiae and tarsi paler. *Vestiture* mainly black; hairs in anterior part of collar, on humerus and numerous hairs in front of wing-bases and intermixed ones in propleural tuft or even entire tuft and a few on coxae pale or whitish; those in propleural tuft sometimes with a slight fulvous tint; hair on at least basal half of venter gleaming pale sericeous whitish or yellowish, not black as in *pusillus*; white tuft on sides of tergite 1 usually with some black hairs in posterior part; fine scaling above mostly greyish, greyish yellowish to ochreous or ochreous golden, but with numerous fine black ones, especially dense on abdomen above; sparse, longish, hair-like scaling on pleurae whitish, greyish to fulvous; those on coxae more sericeous whitish; snow-white scaling on last three tergites in δ and last two in η dense and not silvery as in *pusillus* and that across hind margins and sides of other tergites extending right round between black tufts, some being long and almost hair-like and those discally usually broken up into patches; scaling on venter mostly pale or whitish; that on femora appearing dark above and greyish whitish below. *Wings* with the dark brown, blackish brown, or dark chocolate-brownish infuscation and spots as shown in pl. i, fig. 9, with the infuscation not extending diffusely beyond a point halfway between discal spot and base of upper cubital branch as in *pusillus*, with the hind border of infuscations also more irregular or jagged than in the latter and with a constant though variable clear gap or indentation in front of large discal spot which is not present in *pusillus*; two spots in hyaline part also usually larger than in latter species; base of upper cubital branch with or without an indication of a short stump; middle cross vein at about or a little before or even slightly beyond middle of discoidal cell; plumula brownish or blackish. *Head* with the interocular space about $2\frac{1}{2}$ times in δ and quite 3 times in η the width of ocellar tubercle; slender part of antennal joint 3 usually only a little longer than its terminal joint, but sometimes quite $1\frac{1}{2}$ or more times as long as the latter in some $\eta\eta$. *Legs* with spines on all the femora, usually with no more than 8 in outer row on hind ones. *Hypopygium* of δ (text-fig. 146) differs from that of *pusillus* in having the apical prongs of basal parts much narrower, more slender and without very dense and recurved brush-like hairs; beaked apical joints more flattened, leaf-like, their apical beak recurved and their upper margin angularly extended to a variable degree; apical part of aedeagal complex with a ventrally directed, more or less



TEXT-FIG. 146. Side view of hypopygium, dorso-apical view of right beaked apical joint, and ventral view of apical part of aedeagal process of δ *Anthrax caffer* n. sp.

tridentate, process, but aedeagus itself does not project beyond the process as in *pusillus*. Dorso-apical angles of terminal lamellae also produced spine-like.

From 25 ♂♂ and 24 ♀♀ (types in the South African Museum, paratypes in the Commonwealth Institute, Albany, British and Transvaal Museums).

Length of body: about 4–8 mm.

Length of wing: about $4\frac{1}{2}$ – $9\frac{1}{2}$ mm.

Locality: South-western and Western Cape; Koup Karoo, Little Karoo (holotype from Rust-en-Vrede near Oudtshoorn (Mus. Exp., Oct. 1951) and allotype from Ladismith (Guillarmod, Sept. 1948)), Eastern and North-eastern Cape, Karoo, Namaqualand, North-western Cape, Griqualand West, Orange Free State, Basutoland, Transvaal and South-West Africa.

From the regions given above it is evident that this species is widely distributed, almost all over South Africa. This species also appears to be very

variable with regard to the depth and clearness of the clear indentation in front of the discal spot, in the distinctness of the two spots in hyaline part and in the presence or absence of a distinct spot-like infuscation at apex of discoidal cell. In the ♂ of some forms the clear gap in front of discal spot even extends to costal cell. Some specimens have only indications of spots on cross veins and the wings have some resemblance to those of the North African *fuscipennis* Ric. This species is parasitic in the nests of bees belonging to the genus *Ceratina*. Dr. S. Skaife of Cape Town has bred it from the nests of *Ceratina nasalis* Fr. The cephalic end of the pupal skin of a pupa of this species is shown in text-figure 147.



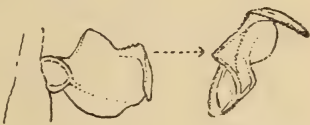
TEXT-FIG. 147. Dorsal view of cephalic end of pupal skin of *Anthrax caffer* n. sp.

Anthrax triatomus n. sp.

(Syn. = *trimaculatus* Bezzi, nec v. d. Wulp, p. 123, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 163, *The Bombyliidae of the Ethiopian Region*, 1924.)

Of this species Bezzi labelled and referred a ♀ to *trimaculatus* a species which v. d. Wulp described from Timor in 1868. As Macquart described a Brazilian species under the same name in 1818, v. d. Wulp's species was subsequently renamed as *tripunctata*. The latter species was later on considered to be synonymic with the Oriental *distigma* Wied. (p. 309, *Aussereurop. Zweifl. Ins.*, i, 1828). If the identity of these two species be accepted we have only to compare this species with *distigma*. This species also appears to be very near *nigerrimus* which Bezzi (p. 164, *The Bombyliidae of the Ethiopian Region*, 1924) described from East Africa. Compared with these two species and the preceding one the new species is characterized as follows:

From *caffer* it differs in having the infuscation in wings (pl. i, fig. 10) distinctly more broken up; the clear gap in front of large discal spot much more extensive, extending more broadly right across to costal cell, even more so in ♂; in having no distinct longish prolongation in marginal cell beyond discal spot; in the presence of three constant and large spots on cross veins; in a distinct whitish spot near base of first basal cell; in having more numerous whitish or pale hairs on coxae; a white plumula; pale or white hairs on greater part of or entire venter; and a tendency to have more ochreous pale scaling on abdomen above. *Hypopygium* of ♂ also very much like that of *caffer*, but the dorsal margin or edge of beaked apical joints (text-fig. 148) is not more or less continuously arched, but distinctly more deeply indented, its basal part thus triangularly projecting and the beak or tooth less recurved.



TEXT-FIG. 148. Side and dorso-apical views of right beaked apical joint of hypopygium of ♂ *Anthrax triatomus* n. sp.

From *distigma* and *nigerrimus* it appears to differ in not having extensive black hair in propleural tuft and on venter; in having more brownish or ochreous golden scaling above; fine black scaling on abdomen not occupying most of the discal part; scaling on venter mostly pale or whitish; wings with a more conspicuous whitish streak near base of first basal cell, the infuscation does not reach hind border of axillary lobe as in *nigerrimus*; first posterior cell tending to be more broadly open than in *distigma*; plumula whitish and not black; and according to Engel's figure of the hypopygium of *distigma*, the apical prongs of basal parts of this species distinctly more slender.

A careful comparison of specimens of *distigma*, *nigerrimus* and *triatomus*, in all three species of which there is a clear gap in front of discal spot and three spots on cross veins in hyaline part, is necessary to establish beyond doubt that these three species are not merely representatives of one very variable and widely distributed species. The material from Willowmore which Engel (p. 429, *Die Fliegen d. Pal. Reg.*, lief. 99, 1936) referred to *distigma* is probably referable to *triatomus*.

From 15 ♂♂ and 7 ♀♀ (types in the South African Museum, paratypes in British, Transvaal, and Natal Museums, and in the Commonwealth Institute).

Length of body: about $4\frac{1}{2}$ –9 mm.

Length of wing: about 5–10 mm.

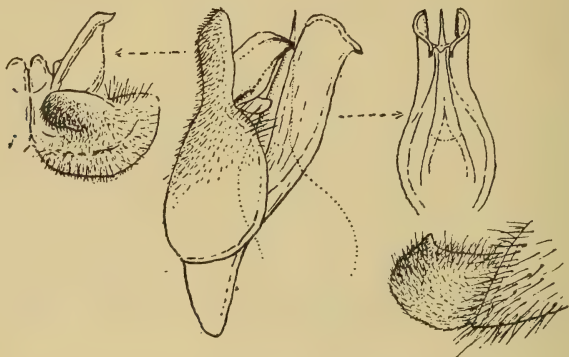
Locality: Eastern and South-eastern Cape: Willow River, Cockscomb near Uitenhage (Mus. Exp., Oct. 1938); East London (Lightfoot, July 1914); Katberg (Turner, 11–18 Feb. 1933); Goshen near Cathcart (Mus. Exp., March 1954) (holotype); Gardiner's Drift near Adelaide (Mus. Exp., March 1954) (allotype); Port St. John (Swinny, Nov. 1916). Natal: Greytown (Mackie, 20 Oct. 1931); Weenen (Thomasset, May 1924); Pietermaritzburg (Akerman, 1918). Zululand: Mfongosi (Jones, May 1916). Little Karoo:

Schoemanspoort (Mus. Exp., Oct. 1938); Slypsteen Mtn., Towerwaterkloof, Willowmore Div. (Mus. Staff, 24 Oct. 1938). Namaqualand: Godous (Goodhouse) (Mus. Exp., Nov. 1936).

Anthrax sticticalis n. sp.

Though superficially resembling *caffer*, this species differs from the latter in the following respects:

Body with the hind margins of sternites and extreme sides of tergites below not or less extensively pale or yellowish. *Vestiture* with the hairs in propleural tuft, prosternal part, on pleurae and on venter mainly very dark or black; bristly hairs on sides of abdomen comparatively less dense, not so tufty; white scales behind eyes more or less concentrated in three patches; white and pale



TEXT-FIG. 149. Side view of hypopygium, apical view of right beaked apical joint, ventral view of aedeagal process, and side view of left terminal lamella of ♂ *Anthrax sticticalis* n. sp.

scales on abdomen above more ovate in shape, becoming triangular posteriorly, those on sides extend right round to ventral part; pale scaling on venter tending to be more concentrated in patches or tufts on sides of sternites; pale scaling on abdomen above, other than white ones, more developed than in *caffer*; silvery tomentum or pruinescence on head in front much more developed than in most species, and usually in form of four spots down each side of frons and face along margins of eyes and with a small tuft of white or silvery scales on each. *Wings* with the dark blackish brown infuscation more distinctly, sharply and more jaggedly marked off from hyaline part than in *caffer*, the infuscation abruptly and truncately ceasing at about middle of marginal cell and the clear gap in front of the slightly projecting and more distinctly quadrate infuscation on middle cross vein either clearly defined or small; only one distinct and well-defined spot in hyaline part at base of third posterior cell, not two or three spots as in *caffer*; four more or less constant subopaquely yellowish whitish spots present in main infuscation, in costal cell before cross vein, one at base of marginal cell, one at same level in first basal cell and a slightly larger one in apical

part of second basal cell respectively; first posterior cell more parallel-sided than in *caffer*; apical part of second vein and upper cubital branch tending to be more sinuate; middle cross vein tending to be more distinctly beyond middle of discoidal cell; longitudinal crease or fold in discoidal cell less prominent and usually shorter than in *caffer*. *Head* with the antennae closer together, distinctly less than twice length of joint 1; joint 2 even more flattened and lens-shaped; broadened basal part of 3 slightly larger, more conspicuously globular and sometimes excavated below, longer than slender part, the terminal joint very short. *Hypopygium* of ♂ (text-fig. 149) differs from that of *caffer* in having the apical prongs of basal parts broader and relatively shorter; beaked apical joints flattened, much less or scarcely recurved apically, and differently shaped; aedeagal process entirely different and lamp-chimney-shaped. Dorso-apical angles of terminal lamellae less sharply produced or hook-like.

From 13 ♂♂ and 6 ♀♀ (types in the South African Museum and paratypes in the Commonwealth Institute).

Length of body: about $4\frac{1}{2}$ –6 mm.

Length of wing: about 5–6 mm.

Locality: Tankwa Karoo: Waterval on the Tankwa River (Mus. Exp., Nov. 1952) (types). Moordenaars Karoo: Lammerfontein (north-west of Laingsburg) (Mus. Exp., Oct. 1952). Koup Karoo: Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952); Rooinek Pass–Seven Weeks Poort (Mus. Exp., Oct. 1952); Koup Siding (Mus. Exp., Oct. 1952). Little Karoo: Vanwyksdorp (Mus. Exp., Oct. 1937). North-western Karoo: Augusfontein near Calvinia (Mus. Exp., Sept. 1947). Namaqualand: Van Rhyn's Pass (Jooste, Nov. 1931, and Cockerell, 11–21 Nov. 1931).

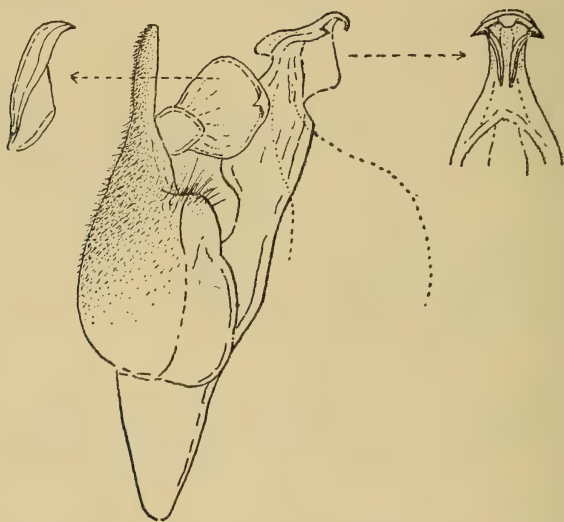
The silvery spots of tomentum on sides of frons and face, the subopaquely yellowish whitish spots in infuscated part of wings, the markedly short terminal joint of joint 3 and the hypopygium of ♂ distinguish this species from allied species of *Anthrax*.

Anthrax candidulus n. sp.

This handsome species resembles *triatomus* and *nigerrimus* Bezz., but its wing-pattern distinguishes it from all other known South African species.

Body black above; face just below antennae, pleurae and venter to a variable extent castaneous brownish to dark brownish; hind margins of sternites scarcely paler than venter; femora blackish brown, dark reddish brown, or black, the tibiae and tarsi much paler, yellowish. *Vestiture* almost entirely black above and below, only the hairs in front part of collar, on humerus, some in tuft in front of wing-bases and those in anterior part of tuft on sides of tergite 1 white; genital tuft of ♀ fulvous; six silvery pruinulent spots present on each side of frons and face along margins of eyes; scaling on head appearing mainly dark, but gleaming brownish or greyish, that present on silvery pruinulent spots above level of antennae and along sides of face distinctly more yellowish whitish or white; fine hair-like scaling above, especially on abdomen, predominantly

black, but with some sparse greyish-gleaming ones on sides of thorax and white ones at apex of scutellum; sparse hair-like scaling on pleurae and coxae gleaming greyish whitish to brownish golden in certain lights; white scaling on abdomen above only dense and conspicuous on sides of tergite 5 and more extensive on sides of 6 and 7 in ♂ and to a lesser extent in ♀; rest of white scaling in form of four small white tufts across hind margins of 2 and 3 and two sub-medial ones on 4 and 5; fine scaling on venter mostly black, but patches of flattened white scales present on sides of sternites and extreme sides of tergites below; scaling on legs dark, gleaming graphite-like or greyish. *Wings* (pl. i, fig. 11) with a very characteristic blackish brown or black pattern and with the clear parts iridescent and vitreous hyaline; large infuscation at base of upper cubital branch extending arcuately into apical part of marginal cell and spot



TEXT-FIG. 150. Side view of greater part of hypopygium, dorsal view of beaked joint, and ventral view of apical part of aedeagal process of ♂ *Anthrax candidulus* n. sp.

in apical part of second submarginal cell very characteristic; spot at base of third posterior cell sometimes confluent with dentate infuscation on middle cross vein; clear gap in front of latter sometimes interrupted by a continuation of basal infuscation along first basal cell to join that on middle cross vein; spot at apex of discoidal cell usually extending down posterior vein between second and third posterior cells; stump at base of second vein markedly long; base of upper cubital vein without any or with only a short stump, the vein itself rather sinuous; middle cross vein a little beyond middle of discoidal cell; apical cross vein of latter cell markedly short, shorter than in any other species; axillary lobe broader than anal cell; plumula dark or black. *Head* with the interocular space about $2-2\frac{1}{2}$ times width of tubercle in ♂ and about 3 times in ♀; antennae

separated by a little less than or about twice length of joint 1; joint 2 disc-shaped; slender part of 3 only about $1\frac{1}{2}$ times as long as terminal joint. *Legs* with only a few spines basally below on front femora, numerous ones on middle and hind ones where they occur in more or less two rows. *Hypopygium* of ♂ (text-fig. 150) very much like that of *caffer*, but with the beaked apical joints more broadly leaf-shaped and flattened, considerably broader across middle; aedeagal complex and middle part of aedeagal part also similar. Dorso-apical angles of terminal lamellae less sharply hook-like than in *caffer*.

From 4 ♂♂ and 2 ♀♀ (types in the British Museum and paratypes in the Transvaal and South African Museums).

Length of body: about 8–9 mm.

Length of wing: about $8\frac{1}{2}$ –10 mm.

Locality: Eastern Cape Province: Katberg near Fort Beaufort (Turner, Dec. 1932) (types); Resolution, Albany Dist. (Walton, 18 Oct. 1927).

Anthrax dimidiatipennis n. sp.

This and the following species, though apparently indistinguishable from *hemimelas* Speis. as far as the dimidiate wing-pattern is concerned, are nevertheless provisionally described as two new and separate species. The main reason for doing so is that at present I have no means of establishing the true specific identity of *hemimelas* which Speiser described (p. 78, *Kilimandjaro-Meru Exp.* (1905–6), ii, Abt. 10, 1910) from a ♀-specimen obtained in the lowlands of Meru in East Africa. At the time the latter species was described no other African forms with an identical wing-pattern were known until Bezzi (p. 622 and pl. L, fig. 3, *Trans. Ent. Soc. Lond.*, 1911) described a species *homogeneous* from Nyasaland. On the basis of similarity of wing-pattern Bezzi subsequently (p. 124, *Ann. S. Afr. Mus.*, xviii, 1921, and p. 166, *The Bombyliidae of the Ethiopian Region*, 1924) referred his species as a synonym of *hemimelas*. At the same time he labelled one of the above specimens, a ♀ from Zululand, as *hemimelas*. In the collections before me there are however two other specimens which have an identical wing-pattern but which differ from the specimen labelled as *hemimelas* in certain important characters which relegate them to a separate specific status. The fact that there are apparently more than one African species with a similar type of dimidiate wings thus raises the problem of the true specific identity of *hemimelas* s. str., and as neither Speiser nor Bezzi paid much attention to characters other than the characteristic wing-infuscation it is impossible to compare the insects before me with *hemimelas* or *homogeneous* unless the actual types be examined. The discovery of separate species having this same type of wing-infuscation also raises the suspicion that the various specimens from various parts of Africa which Bezzi and Curran (p. 40, *Bull. Amer. Mus. Nat. Hist.*, lvii, 1927) referred to Speiser's *hemimelas* may not all belong to that species.

Body black; lower parts tending to be more dark castaneous, but without any reddish or paler hind margins to sternites; femora dark reddish brown, the tibiae and tarsi slightly paler, more yellowish. *Vestiture* predominantly black,

with only the hairs in front part of collar, on humerus, intermixed ones in tuft in front of wing-bases and in more than anterior half of tuft on sides of tergite 1 white; plumula also white; scaling on head in front greyish whitish; fine scaling on thorax above composed of black ones more or less in bands and pale greyish yellowish or greyish ones on sides, across base and between black bands; scaling across hind margin of scutellum more whitish; fine scaling on abdomen above black; flattened, snow-white scaling more distinct as patches on sides of hind margins of tergites 1, 2 and 5, and densely on sides of last two tergites, those on sides of 5 long and tuft-like, the pale ones discally across hind margins only indicated as scattered greyish ones; sparse hair-like scaling on pleurae and coxae gleaming dull brownish golden; scaling on venter mostly blackish; that on legs dark, gleaming greyish brownish. *Wings* with more or less basal half dark blackish brown to very dark chocolate, the infuscation extending from very near apex of axillary and anal cells obliquely and slightly irregularly across to near apex of costal cell, thus including base of fourth posterior cell, almost basal half of discoidal cell, middle cross vein area and bases of first submarginal and marginal cells, with a tendency for a slight clear spot or gap to be sometimes present in front of middle cross vein; rest of wing vitreous hyaline and without any spots on cross veins in clear part; basal stump of second vein long; stump at base of upper cubital branch very short or rudimentary; middle cross vein at about middle of discoidal cell; anal cell acute apically, much narrower than axillary lobe. *Head* with the interocular space in ♀ about 3 times width of ocellar tubercle; antennae separated by scarcely twice length of joint 1; joint 2 disc-shaped, about twice as long as broad; base of 3 flattened, bulb-like, its slender part tapering, and the terminal joint very short. *Legs* with spines on all the femora below.

From 2 ♀♀ in the South African Museum.

Length of body: about $7-7\frac{1}{2}$ mm.

Length of wing: about 8 mm.

Locality: Zululand: Mfongosi (Jones, April 1916 (type) and Dec. 1911).

Anthrax mimetes n. sp.

Two ♀♀ in the collections have exactly the same dimidiolate wings as described for *hemimelas* by Speiser and as described for the preceding species. From *dimidiatipennis* they however differ in the following respects:

Interocular space in front of ocellar tubercle relatively wider about $3\frac{1}{4}-3\frac{1}{2}$ times width of tubercle; antennae slightly but distinctly wider apart, the distance between them quite twice length of joint 1; joint 2 also relatively longer, its length to breadth being as 3:4 and not as 2:4 as in *dimidiatipennis*; broad base of joint 3 distinctly more flattened and discoidal, less onion-shaped, its basal margin also more rim-like, with the slender rod-like part relatively more slender, equally thick throughout its length, not tending to taper and with its terminal joint distinctly very much longer, only a little less than half length of

the slender part. *Vestiture* with the bristly hairs in tuft on sides of tergite 1 entirely black in lower half; those across hind margin of last sternite distinctly longer, very much denser and comparatively tuft-like; white scales on sides of last two tergites distinctly much broader, more cuneiform and also longer. From Speiser's description of *hemimelas* (p. 78, *Kilimandjaro-Meru Exp.*, ii, Abt. 10, 1910) it differs in having no orange yellowish scales on sides of tergite 1 and in having long, snow-white scales on sides of last two tergites.

From 2 ♀♀ (type in the Transvaal Museum).

Length of body: about 8–10 mm.

Length of wing: about $8\frac{1}{2}$ – $10\frac{1}{4}$ mm.

Locality: East Transvaal: De Kaap in Barberton (Munro, 9 Oct. 1919) (type); Pienaar's River (v. Jutrzencka, 1898).

Anthrax biflexus Lw.

(Loew, p. 659, *Bericht d. Königl. Preuss. Akad. d. Wiss.*, 1852; Loew, p. 12 and pl. i, fig. 9, *Peters Reise nach Mossamb.* (Zool.), 1862.)

This is the species, or representatives of it, which Bezzi determined as *aygulus* Fabr. in his memoirs on South African and African Bombyliidae (p. 123, *Ann. S. Afr. Mus.*, xviii, 1921, and p. 163, *The Bombyliidae of the Ethiopian Region*, 1924). There is no doubt whatever that this is the species which Loew described from Tette in Portuguese East Africa. As there are many species of *Anthrax* which have almost identical wing-patterns, it is impossible to verify Bezzi's contention that this species is the West African *aygulus* s. str. of Fabricius unless the type or material from West Africa on which Fabricius and Wiedemann (p. 261, *Aussereurop. Zweifl. Ins.*, i, 1828) based their descriptions be examined. With the exception of certain species of vertebrates and invertebrates inhabiting the equatorial forests of West Africa and of which some species are still found as relicts in remnants or former eastward extensions of this great equatorial forest in Uganda and Kenya, the fauna of West Africa is entirely different from that of East Africa. Both Fabricius and Wiedemann's descriptions of *aygulus* are so unsatisfactory that no species can be identified from them with certainty. Moreover according to Wiedemann the original type-specimen is without an abdomen and he had to supplement his description with the help of another specimen in Copenhagen which presumably also came from West Africa. According to him the tufts on sides of tergite 1 in this latter specimen are yellowish and the white scaling posteriorly is only represented band-like on tergites 5–7. He also mentions a black spot or patch on each side submedially and among the ashy grey scaling on frons anteriorly and he gives the length as 7 lines (14.5–15 mm.). In *biflexus* on the other hand the tufts on sides of tergite 1 are white in upper part and white scaling is conspicuous also on sides of hind margins of tergite 4 as well as on sides of 5–7. There are no black spots on frons anteriorly and the largest specimens only attain a length of about 13 mm. As far as the *aygulus* and *biflexus* type of wing-pattern is concerned it is interesting

to mention that other African species, such as *caffer* and *triatomus*, Palaearctic varieties of *trifasciatus*, such as *leucogaster*, and according to v. d. Wulp and Bezzi some Oriental forms and even American species, such as *albofasciata*, all show a very similar or identical type of wing-pattern.

If *biflexus* is specifically identical with *aygulus*, then it at least merits a distinct varietal status. The South African examples before me are characterized as follows:

Body predominantly black, the lower parts sometimes more dark brownish or dark castaneous, but usually without any distinct paler hind margins to sternites; femora dark blackish brown to black, only their extreme lower apical parts, especially front ones, more yellowish; tibiae and tarsi more yellowish brownish or dark reddish brownish, apical parts of latter dark. *Vestiture* predominantly black, only the hairs in front part of collar, on humerus and humeral part of notopleural tuft, some intermixed ones in hinder part of propleural tuft, the plumula and upper half of tuft on sides of tergite 1 white, but with some of the hairs in plumula sometimes more fulvous; extreme sides of frons and face along margins of eyes with silvery pruinescence, more or less broken up into streaks or spots; scales on frons and face greyish whitish to white; fine scaling on thorax above gleaming golden, reddish golden to brownish golden, the longer ones on sides denser and more reddish golden; a small tuft in front of wings brownish fulvous; some dark or black scales and greyish white ones also present on disc of thorax; fine hair-like scaling on pleurae brownish fulvous or brownish golden; fine scaling on abdomen above mainly black; sparse ones on venter also dark, sometimes gleaming brownish in certain lights; flattened white scales on abdomen as interrupted bands, the patches on sides of tergites 2 and 4 long, dense and conspicuous, and the two submedial ones much smaller, usually without a distinct lateral tuft on sides of 3; white scaling on sides of 5-7 very dense, conspicuous, those on extreme sides long and wedge- or bat-shaped, those on 6 occupying almost entire disc; scaling on legs mainly dark, gleaming graphite-like or brownish. *Wings* with the dark blackish or dark chocolate infuscation as shown by both Loew and Bezzi, occupying basal part and extending from apical third of axillary lobe obliquely across bases of fourth posterior and discoidal cells to near apex of costal cell; infuscation on middle cross vein confluent with main infuscation, projecting peninsula-like and with a clear gap or even a spot in front of latter which does not extend beyond first basal cell; uninfuscated part of wings vitreous hyaline, with two constant and distinct spots at bases of third posterior cell and upper cubital branch respectively, the former spot usually isolated; stump present at bases of second vein and upper cubital branch, the latter vein markedly sinuous and with a deep, even subangular, loop and in some specimens even with an indication of a stump at this bend; middle cross vein usually a little beyond middle of discoidal cell, sometimes nearer middle; axillary lobe much broader than anal cell. *Head* with the interocular space in ♂ about $3-3\frac{1}{2}$, in ♀ about $3\frac{1}{2}-4$, times width of tubercle; antennae separated by at least twice length of joint 1; joint 2

disc-like, much broader than long; slender part of 3 at least 4 or 5 times length of terminal joint. *Legs* with spines on all the femora, those on hind ones numerous, irregularly triplicated or even quadruplicated in basal part. *Hypopygium* of ♂ (text-fig. 151) with slender prong-like apical processes; beaked apical joints flattened, with a strong, outwardly directed apical spine and a smaller subsidiary apical spine. Dorso-apical angles of terminal lamellae sharply pointed, hook-like.

In the Transvaal and South African Museums and the Agricultural Department of Southern Rhodesia.

Length of body: about 8–13 mm.

Length of wing: about $10\frac{1}{2}$ – $14\frac{1}{2}$ mm.

Locality: Karoo, Little Karoo, Eastern Cape, Zululand, Portuguese East Africa, Southern Rhodesia and South-West Africa.

From *caffer*, which this species resembles in wing-pattern, it is distinguished in being distinctly larger, in having a very much shorter terminal joint to antennal joint 3, a relatively broader interocular space, no distinct reddish or yellowish hind margins to sternites, a white or pale plumula, black hair on venter, more extensively infuscated axillary and anal cells, more numerous spines on femora, differently shaped beaked apical joints of the hypopygium, etc.

Anthrax hessii Wied.

(Wiedemann, p. 289, *Aussereurop. Zweifl. Ins.*, i, 1828.)

As there are several African species with a similar type of wing-pattern, in which the base and costal cell are infuscated and with more or less four spots on cross veins in hyaline part, it is very difficult to determine which species Wiedemann had before him without examining his type-material. Specimens in the South African Museum which Bezzi (p. 123, *Ann. S. Afr. Mus.*, xviii, 1921) referred to this species do not agree with Wiedemann's description of the wing-pattern or the vestiture, and one of these specimens (from Gifberg) has been referred to a new species *tetraspilus* in which the wing-pattern is more like that of *diffusus*. Moreover it has no extensive reddish brown, reddish golden or brownish golden hair-like scaling on the body as described by Wiedemann. The other specimen (from Hex River) which more or less agrees with Wiedemann's description of the wing of *hessii*, however, also lacks the reddish brown hair-like scaling and is referred to the next species. Certain ♂♂ and ♀♀ in the collections before me, however, appear to agree more with Wiedemann's description than with other species and these are provisionally referred to *hessii*.



TEXT-FIG. 151. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of apical part of aedeagal structure of ♂ *Anthrax biflexus* Lw.

The characters of the latter species, as based on these specimens, are as follows:

Body mainly black; hind margins of tergites on extreme sides below, hind margins of posterior sternites and sometimes to a variable extent sutural parts of pleurae and in ♂ hind margins of last two tergites reddish or yellowish reddish; face sometimes brownish or reddish brownish; femora blackish brown to black, their lower surfaces apically more yellowish or reddish, the tibiae and tarsi reddish or even yellowish, apical parts of tarsi dark. *Vestiture* markedly dense, the insects appearing more hirsute, mainly black above; hairs in collar, on humerus, notopleural part, mesopleural tuft, propleural part, coxae and sternal parts composed of whitish, greyish whitish or straw-coloured ones intermixed with black ones, the pale ones predominating; pale hair on propleural and prosternal parts and in mesopleural tuft sometimes with a slight fulvous tint; hairs on venter gleaming whitish or sericeous yellowish in basal half in ♂, sometimes white-tipped, usually dark in apical two-thirds of venter in ♀ and pale-tipped at base; tufts on sides of abdomen mainly dark or black in ♀, their lower parts more sericeous or slightly reddish golden in ♂; basal tuft predominantly white in both sexes; plumula whitish, yellowish brownish, or white and dark, or even entirely dark; hair-like scaling markedly developed, more conspicuous than in other species, dense and golden, brownish golden or orange golden on frons and face, conspicuous in facial tuft; flattened scaling behind eyes greyish whitish, slightly tinted yellowish in ♀; hair-like scaling on thorax and scutellum above gleaming mostly golden, orange golden to brownish golden, sometimes, however, more greyish yellowish; that on pleurae and coxae longish, dense, greyish yellowish, sericeous yellowish, reddish yellowish to slightly fulvous or reddish brownish; those on coxae sometimes more whitish; hair-like scaling on abdomen above dense, mainly orange or brownish golden in ♂, with more dark or black ones among pale ones in ♀; flattened white scales present as patches or tufts across hind margins (two discal and submedial ones and lateral tufts) on tergites 2-4 and a medial patch on 3, and the lateral tufts becoming longer and denser posteriorly, those on 6 and 7 in ♂ occupying almost entire segments; scaling on venter dense, predominantly whitish or greyish whitish; that on legs mostly greyish yellowish to ochreous yellowish. *Wings* (pl. i, fig. 12) greyish hyaline and with the yellowish brown or chocolate-brownish infuscations and spots as shown in figure, the basal infuscation usually more translucent in middle of cells and the wing-pattern on the whole more broken up into spots and infusions; bases of both second vein and upper cubital branch with a stump; the latter vein markedly sinuous, its backward loop or bend rather deep; middle cross vein usually slightly before middle of discoidal cell; first posterior cell markedly narrowed apically; axillary lobe very much broader than anal cell. *Head* with the interocular space in ♂ about $3\frac{1}{4}$ to nearly 4 and in ♀ quite 4 times width of tubercle; antennae separated by about, or a little less than, twice length of joint 1; joint 2 disc-shaped; slender part of 3 rather long, its terminal joint about half or a little less length of slender part. *Legs*

with spines on all the femora, those on hind ones long and numerous, disposed in several rows at base below. *Hypopygium* of ♂ (text-fig. 152) with the apical prongs slender, slightly curved inwards apically; beaked apical joints flattened, concave outwardly, the beak curved slightly outwards and backwards and the inner edge markedly jagged; aedeagal complex tridentate apically below, the middle lobe bluntly rounded, and with a median flattened wattle-like lobe below. Dorso-apical angles of terminal lamellae acutely pointed and toothed (lower right-hand figure).

In the British, Transvaal and South African Museums.

Length of body: about 10–13 mm.

Length of wing: about 11–14 mm.

Locality: South-western and Western Cape, Meiringspoort in the Swartberge, Little Karoo, North-western Karoo and Namaqualand.

This species appears to frequent the slopes of rocky hills and mountains. Superficially the wing-pattern is very much like that of the Palaearctic *varia* Fabr. as figured by Engel (pl. viii, fig. 109, *Die Fliegen d. Pal. Reg.*, 1936) and also to a certain extent that of *distigma*, but it differs from both of these in the denser hair, denser orange golden scaling, etc. From *diffusus* and its varieties it may be distinguished by the broad gap in front of infuscation on middle cross vein area and the faintness or absence of extensive infuscation beyond middle cross vein and by the conspicuous orange golden or yellowish scaling on body, etc.

Anthrax bifarius n. sp.

(Syn. = *hessii* Bezzi, in part, nec Wiedemann, p. 123, *Ann. S. Afr. Mus.*, xviii, 1921.)

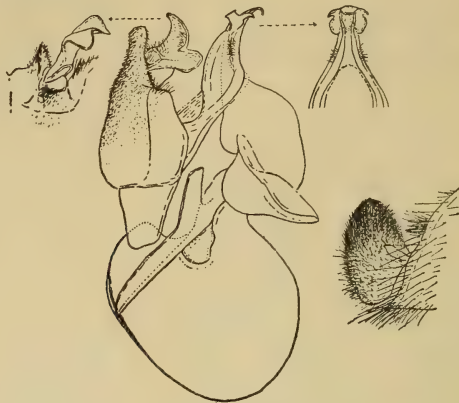
The wing-pattern of this species resembles both that of *biflexus* and *hessii*, but as a species it is apparently nearer the latter. Compared with these two species it differs in the following respects:

From *hessii* it differs in having less dense hair; distinct, narrow, silvery pruinescence or pruinulent spots on extreme sides of frons and face; in having the hairs on prosternal, propleural, pleural parts, coxae and on entire venter black; fewer intermixed whitish hairs on humeral and notopleural parts; in having only the upper part of tuft on sides of tergite 1 white; hair-like scaling distinctly less dense; the relatively shorter scales on head in front more whitish or greyish yellowish; hair-like scaling on thorax above much shorter, more



TEXT-FIG. 152. Side view of hypopygium, dorsal view of right beaked apical joint, ventral view of apical part of aedeagal structure, and (lower right hand) side view of left terminal lamella of ♂ *Anthrax hessii* Wied.

greyish to brassy, and that on pleurae much darker, more blackish brown; fine scaling on abdomen shorter, duller, more greyish yellowish or duller ochreous yellowish; scaling on venter finer, dark or mostly blackish, gleaming brownish, not pale and whitish as in *hessii*. *Wings* with the infuscation darker, blackish brown to dark chocolate, more uniform, not paler in middle of cells; clear gap in front of middle cross vein area narrower and the spot on latter tending to be connected with basal infuscation, without cloudiness in first submarginal and first posterior cells beyond cross vein. *Antennae* with the terminal joint of joint 3



TEXT-FIG. 153. Side view of hypopygium, dorsal view of right beaked apical joint, ventral view of apical part of aedeagal structure, and side view of left terminal lamella of ♂ *Anthrax bifarius* n. sp.

relatively shorter. *Hypopygium* of ♂ (text-fig. 153) differs in having very short, obliquely truncated apical prongs, entirely different type of beaked apical joints; aedeagal complex has no wattle-like process apically below. Last sternite is very much shorter than in any of the species dealt with, and dorso-apical angles of terminal lamellae not very sharply hook-like.

From *biflexus* it may be distinguished by its less extensive basal infuscation in wings, the infuscation extending only to about middle and not beyond middle of anal and axillary cells; clear gap before discal spot deeper, more distinct even in ♀, the latter spot thus not appearing as a dentate process; in having three distinct spots on cross veins; in having paler hair-like scaling above; less extensive silvery scaling at end of body; and by its different type of hypopygium.

From 5 ♂♂ and 3 ♀♀ (types in the South African Museum and paratypes in the British and Transvaal Museums).

Length of body: about 9–13 mm.

Length of wing: about 10–14 mm.

Locality: South-west Cape: Hex River (Dec. 1884) (types); Hex River (L.P.). Karoo: Willowmore (Brauns, 5 May 1927). South-West Africa: Aus in Great Namaqualand (Turner, Dec. 1929); Waterberg (Tucker, Feb. 1920); Otjivarongo (Feb. 1920); Nuragas (Lightfoot, Jan. 1919).

The specimens from South-West Africa appear to be darker and with the infuscations also darker and more blackish brown.

Anthrax triguttellus n. sp.

A few specimens from the Cape mountains in the collections of the South African Museum appear to differ from all other species with spotted wings. They are characterized as follows:

Body mainly black; legs very dark blackish brown, but the tibiae paler, more dark reddish brownish. *Vestiture* with the hairs and bristly hairs rather dense and longish, those on sides of abdomen, especially in ♀, very dense and somewhat shaggy, the erect ones on abdomen above relatively long and dense; most of these hairs on body above and below mainly black, but with those in collar anteriorly, on humerus anteriorly, numerous ones intermixed in mesopleural tuft, most of those in propleural tuft, the plumula, the greater anterior part of dense tuft on each side at base of abdomen and in ♀ a few intermixed ones on each side near end of abdomen white; scales on frons and face greyish whitish; those on thorax above and on scutellum greyish yellowish, but with an admixture of fine black ones; hair-like scales on pleurae and coxae greyish whitish or straw-coloured; scaling on abdomen above, other than white ones, and the sparse ones on venter (venter for the greater part smooth and shining) mainly dark or black, a few posteriorly on each side of venter in ♂ however whitish; white scaling on abdomen above arranged across hind margins of tergites 2-6 and across entire 7 in ♀ and 2-4 and across entire 5-7 in ♂, those in ♀ more or less broken up into four spots or patches of which those on sides are denser and larger, with this white scaling in both sexes not extending right round to the inflexed sides below; scaling on legs dark, but that on hinder part of front and middle ones greyish whitish. *Wings* greyish hyaline, with the basal and costal parts yellowish brown or brown, the infuscation occupying and extending from a little beyond middle (♂) or about basal two-thirds (♀) of anal and axillary cells across spot at base of fourth posterior cell and across base of discoidal cell to costal cell in ♂ and in ♀ to the large subquadrate discal spot and thence to costal cell, with however the apical and hinder parts of axillary lobe clearer, and a large, broadish, clear area or gap before large discal spot which in case of ♂ extends right across to costal cell isolating discal spot, but in ♀ only halfway across base of marginal cell, leaving the narrow anterior part of latter cell infused, which infuscation in ♀ also extends apically beyond discal spot for a short distance; first basal cell with a whitish streak at its base; cross veins in clear part with three rather conspicuous and largish spots more or less of equal size at bases of second submarginal, second and third posterior cells respectively; upper cubital branch not very deeply bent backwards and its course either straight or not very wavy; first posterior cell rather broadly open and only a little narrowed apically; middle cross vein at about middle of discoidal cell; squamae white, white-fringed; halteres yellowish, with pale yellowish knobs. *Head* with the interocular space on vertex about $2\frac{1}{2}$ times width of tubercle in ♂

and 3 times this width in ♀; antennae with joint 1 rather markedly short; joint 2 even more markedly short, much flattened and lens-shaped, both these joints together in ♀ at least about as long as large, dilated bulbular base of joint 3; the slender part of latter scarcely longer or only a little longer than broad base; terminal joint of slender part of joint 3 about or nearly half length of slender part. *Legs* with some small spinelets on front femora below; middle ones with about 4–6 spines below; hind ones with about 9 or 10 spines on outer lower part and a row of small ones on inner aspect as well as some apical ones; spicules on tibiae rather well developed and fairly dense; hairs on outer lower part of front and middle femora rather well developed. *Hypopygium* of ♂ with the apical angles of the clasper-like basal parts produced triangularly prong-like.

From 3 ♂♂ and 1 ♀ in the South African Museum.

Length of body: about $7\frac{1}{2}$ mm.

Length of wing: about $7\frac{1}{2}$ –8 mm.

Locality: Western Cape: Wit River Valley, Bain's Kloof near Wellington (Mus. Exp., Dec. 1949) (types); Wit River, Wellington, about 1,500 ft. alt. (Barnard, Nov. 1922).

Easily recognized by the basal and costal infuscation in wings, the large subquadrate discal spot and the three largish spots on cross veins. Its wing-pattern resembles that of both *bifarius* and *triatomus*. From the former it however differs by its slightly less dense hairs, fewer or entire absence of pale scaling on abdomen above other than the white ones, much fewer and less developed spines on femora and spicules on tibiae, shorter first and second antennal joints, white plumula, relatively larger spot at apex of discoidal cell, less wavy upper cubital branch, slightly longer prongs of hypopygium, and smaller size.

From *triatomus* which it even more closely resembles in wing-pattern, it differs in having a smaller and more subquadrate discal spot, more or less equally large spots on cross veins, longer and relatively denser hairs on abdomen, entirely black hairs and scales on venter which is much smoother, mainly black scaling on abdomen above, slightly more numerous spicules on tibiae, distinctly shorter and more triangular prongs to the ♂-hypopygium, etc.

Anthrax consobrinus n. sp.

Body mainly black; extreme sides of tergites below, especially posteriorly, and last sternite tending to be slightly more brownish or castaneous in ♂ at least; legs dark or very dark piceous brownish, the tibiae and tarsi slightly paler. *Vestiture* with the hairs above and below mainly black, but with those in collar anteriorly, on anterior part of humerus, intermixed ones on sides of thorax anteriorly, in mesopleural tuft and in posterior part of propleural tuft greyish whitish, yellowish whitish or straw-coloured; tuft on sides of tergite 1 white, but with black hairs posteriorly; plumula white; hairs on venter dark; scaling on frons and face yellowish to golden or even orange golden; fine depressed ones

on thorax above fairly or even markedly dense, mainly yellowish to golden or deep golden, reddish or even orange golden, but also with fine black ones to a variable extent; hair-like scaling on pleurae and coxae greyish yellowish, yellowish, reddish yellowish, or sometimes fulvous; fine scaling on abdomen above predominantly ochreous yellowish to orange or reddish yellowish, but also with some fine dark or black scales discally; flattened white scales across hind margins of tergites 2-7 rather dense, especially on sides, more conspicuous and more extensive on last three tergites in ♂ and to a lesser extent on last two in ♀, the white scaling in ♀ distinctly less extensive and those even on sides of tergites 2-5 sometimes more yellowish or even ochreous than white and those discally on last three tergites in ♂ also tending to be more ochreous; the white scaling not extending right round to inflexed sides below; scaling on venter more hair-like, rather sparse, mainly dark, sometimes appearing brownish to brownish golden; that on legs dark gleaming greyish, but more greyish whitish on outer surfaces. *Wings* greyish hyaline, with the costal cell and the basal part to a little beyond middle of anal and axillary cells and across apex of second basal cell to costal cell and a large oblong or subquadrate spot on middle cross vein and base of first submarginal cell infuscated yellowish brownish; bases of third and second posterior and second submarginal cells with spot-like infuscations of variable extent; base of first basal cell in infuscated basal part with a distinct whitish streak or spot; base of upper cubital branch with a stump, the vein itself moderately bent hindwards and slightly sinuous; first posterior cell rather widely open and only a little narrowed apically; middle cross vein tending to be a little beyond middle of discoidal cell; squamae whitish, white-fringed; knobs of halteres pallid or whitish posteriorly above. *Head* with the interocular space in ♂ about $2\frac{1}{2}$ to nearly 3 times width of tubercle and about 3 to 4 times this width in ♀; antennae with joint 2 disc-shaped, with broad base of joint 3 roundly bulb-shaped or sub-bulbular, subequal in length or a little shorter than its slender part of which the terminal joint is about or a little less than half slender part. *Legs* with the fine hairs on front and middle femora below distinct and well developed; spines present on all the femora. *Hypopygium* of ♂ similar to that of the variety (cf. text-fig. 154) described below.

From a ♂ and a ♀ (holotype in the South African Museum and allotype in the Transvaal Museum).

Length of body: about $6\frac{1}{2}$ -8 mm.

Length of wing: about $7\frac{1}{2}$ -8 $\frac{1}{2}$ mm.

Locality: Nieuveld Karoo: Escarpment in the Beaufort West Div. (Mus. Exp., Nov. 1935) (holotype). Allotype also probably from the Cape or Karoo, labelled 'W.b.3/1/04'.

Some other representatives of this species from various parts of the Karoo in the collections before me, show that this species is variable in the nature and extent of its wing-infuscation and that these specimens constitute a distinct variety as described below.

Anthrax consobrinus var. *suffusipunctis* n.

This variety differs from the typical form in having the infuscation in the wings (pl. i, figs. 13 and 15) distinctly more diffuse and even more extensive to a variable extent, the clear part even being more greyish hyaline or sometimes even slightly brownish or smoky hyaline; the infuscation itself, apart from the basal and costal yellowish brownish infusion, sometimes extends diffusely to a variable and faint extent along the veins or part of the veins anterior to the spots or infusions on the cross veins, especially the upper and lower veins of the discoidal cell; large discal spot usually more hazy and diffuse and in ♀ sometimes with the clearer area before it scarcely evident as a clear gap and the base of discoidal cell more extensively infused; spots on cross veins usually larger, more hazy or diffuse, the one at apex of discoidal cell sometimes even coalescing with the discal spot via upper vein of discoidal cell; wings on the whole with a more spotted or even reticulate appearance; veins in apical part of wing around base of upper cubital branch tending to be unstable, the base of second submarginal cell sometimes duplicated or even triplicated and in some speci-



TEXT-FIG. 154. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Anthrax consobrinus* var. *suffusipunctis* n.

mens a supernumerary cross vein to second vein even divides this part of wing into three submarginal cells. *Hypopygium* of ♂ as shown in text-fig. 154 is identical with that of typical form.

From 4 ♂♂ and 4 ♀♀ in the South African Museum.

Length of body: about $5\frac{1}{2}$ – $8\frac{1}{2}$ mm.

Length of wing: about 6–9 mm.

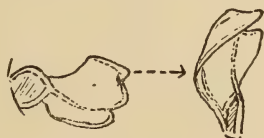
Locality: North-western Karoo: Calvinia (Mus. Exp., Sept. 1936) (types). Namaqualand: Kamieskroon (Mus. Exp., Sept. 1930). Moordenaars Karoo: Lammerfontein, north-west of Laingsburg (Mus. Exp., Oct. 1952). Koup Karoo: Gamkaspoot (Mus. Exp., Oct. 1952). Tankwa Karoo: Waterval on the Tankwa River (Mus. Exp., Nov. 1952).

In its wing-pattern this variety resembles *hessii* to a certain extent. It may however be easily distinguished by its smaller size, less dense hair on pleurae and sides of abdomen, dark hairs on venter, shorter white scales on abdomen, much darker legs with less dense spines and spicules, shorter prongs of hypopygium, etc. From *triguttellus* which this variety also resembles it may be distinguished by the less delimited and more diffuse basal infuscation in wings, more diffuse spots on cross veins, yellowish or ochreous scaling on abdomen above, slightly shorter hairs on abdomen and slightly larger and longer second antennal joint.

Anthrax chalcarius n. sp.

This species resembles *consobrinus* very closely. Compared with the latter and its variety it differs in the following respects:

Vestiture with the hair on propleural, prosternal and pleural parts entirely dark or black and with less pale hair even in collar and notopleural part; plumula dark or black; fine hair-like scaling on thorax above with numerous black scales in addition to golden ones; fine scaling on abdomen above predominantly dark or black, not orange golden, these scales gleaming greyish brownish in certain lights, black in others; flattened pale scaling across hind margins of tergites, even on sides, less evident and denser ones on last three tergites gleaming golden or ochreous golden from all angles, not whitish even on extreme sides, only those on sides of tergites 2 and 3 appearing more whitish. *Wings* with a similar pattern, but without a whitish streak near base in first basal cell; clear gap in front of discal spot slightly less distinct; only two distinct spots present on cross veins in hyaline part, the one at apex of discoidal cell wanting or scarcely perceptible. *Head* with the antennae slightly less widely apart. *Hypopygium* appears to differ in having the lower margin of beaked apical joints more distinctly indented just below beak (cf. text-fig. 155) and with the lower extension thus more lobe-like; keel-like extension below apical part of aedeagal complex less developed.



TEXT-FIG. 155. Side and dorsal views of right beaked apical joint of ♂ *Anthrax chalcarius* n. sp.

From a ♂ in the South African Museum.

Length of body: about $6\frac{1}{2}$ mm.

Length of wing: about $7\frac{1}{2}$ mm.

Locality: Bushmanland: Aggenys between Springbok and Pella (Mus. Exp., Oct. 1939).

The wing-pattern of this species also resembles that of *caffer*, but differs in that the main infuscation does not extend distinctly beyond discal spot in marginal cell and the two spots on cross vein are smaller. Moreover the venter is darker and paler or reddish hind margins to sternites and extreme sides of tergites are not conspicuous as in *caffer*. The hairs on propleurae, pleurae and base of venter are dark and not pale. The scaling on thorax is more distinctly golden and that on abdomen posteriorly more ochreous yellowish. The wing-pattern of this species is also much like that figured for the Palaearctic *trifasciata-leucogaster* by Engel (pl. viii, fig. 108, *Die Fliegen d. Pal. Reg.*, lief. 99, 1936), but in this case also there is no extension of the infuscation beyond discal spot in marginal cell. Moreover the orange scaling on anterior part of body, the yellowish scaling posteriorly and the dark scaling on abdomen above also distinguish it from the Palaearctic species.

The *muscaria-dentata*- and *fuscipennis*-group

There appears to be great taxonomic confusion as to the identity of the species belonging to this group and until the various members of this group, both

Palaeartic and Ethiopian, are thoroughly revised and the types of the respective species, which have been lumped together by various authors, are carefully studied and compared, it is impossible to arrive at any conclusions as to the identity or specific status of these three species. The fact that more than one species of *Anthrax* often show a similar type of wing-pattern has been the cause of this confusion. This similarity of wing-pattern has led Bezzi and other authors who followed him to conclude that the above mentioned three species are co-specific. From the various descriptions, supplementary comments and illustrations given by the various authors it is by no means certain that *dentata* and *muscaria* are synonymous with the *fuscipennis* which Ricardo described from Sokotra (p. 366 and pl. xxii, figs. 2, 2a, *The Nat. Hist. of Sokotra and Abd-El-Kuri*, 1903). Still less certain is Bezzi's conclusion (p. 124, *Ann. S. Afr. Mus.*, xviii, 1921, and pp. 166 and 167, *The Bombyliidae of the Ethiopian Region*, 1924) that certain species from Southern Africa are identical with the Palaeartic *fuscipennis*. In view of the fact that in the collections before me there are several distinct forms which show the *fuscipennis* type of wing-pattern and that the true identity of *fuscipennis* is in question, I am provisionally referring the South African forms to separate species as described hereunder.

Anthrax doliops n. sp.

Body black; sutural parts of pleurae and venter usually more castaneous brownish, especially in ♂; hind margins of tergites on extreme sides below and also those on sides of last few tergites and hind margins of sternites yellowish reddish or reddish brownish, more so in ♂; femora reddish brownish, dark piceous brownish, or dark blackish brown, their under-surfaces usually paler and tibiae and tarsi more yellowish. *Vestiture* above and on front half below mainly black, but the hairs in front part of collar, in humeral tuft, on notopleurae, in hinder part of propleural tuft, on basal part of front coxae, numerous ones on mesopleurae, the plumula and tuft on sides of tergite 1 anteriorly whitish or white; those at base or on basal two-thirds of venter gleaming sericeous whitish to yellowish, especially in ♀, these hairs in most ♂♂, however, darker, more fulvous brownish, even hairs on propleural and coxal parts sometimes with a slight pale fulvous tint; silvery pruinescence or pruinescent streaks present on sides of frons and face and in fresh specimens also with a shining black patch in front of ocellar tubercle and a smaller one on each side midway between antennae and tubercle; fine scaling on thorax above gleaming mostly greyish whitish or pale greyish yellowish, but with fine black hair-like ones discally in bands or patches; hair-like scaling on pleurae and coxae greyish or greyish yellowish in ♀, more brownish and sparser in ♂; fine scaling on abdomen above mostly dark or black across bases or basal halves of tergites, greyish whitish or yellowish in apical halves and across hind margins on sides; snow-white scales dense on sides of tergites, sparse or interrupted and spot-like discally, those on sides of last three tergites very dense in ♂, covering most of last two segments, those on sides of 2-4 extending right round to venter; scaling on latter mostly

pale or whitish; scaling on legs gleaming greyish or greyish yellowish. *Wings* vitreous hyaline and with a pattern as shown in pl. i, fig. 14; infuscation on middle cross vein projecting hook-like and with a variable clear gap in front of it, which, however, is never entirely clear to costal cell; main infuscation extending apicalwards in marginal cell some distance beyond discal spot where it usually ends abruptly and without any spots or with scarcely distinguishable cloudiness on basal cross veins of third posterior and second submarginal cells in hyaline part; base of upper cubital branch more often without any stump or with a vestigial one; middle cross vein usually just before middle of discoidal cell; first posterior cell rather broadly open; axillary lobe much broader than anal cell. *Head* with the interocular space in ♂ about $2-2\frac{1}{2}$ and in ♀ about $2\frac{2}{3}-3$, or even a little more, times width of tubercle; antennae separated by about or a little less than twice length of joint 1; joint 2 disc-shaped; slender part of 3 about $1\frac{1}{2}-2$ times as long as terminal joint in ♂, and quite 3 times its length in ♀. *Legs* with spines on all the femora below. *Hypopygium* of ♂ (text-fig. 156) with the apical prongs somewhat flattened dorso-ventrally; beaked apical joints as shown in figures; aedeagal complex with a flattened thin, keel-like extension ventrally and apically below. Dorso-apical angles of terminal lamellae produced hook-like.

From 13 ♂♂ and 11 ♀♀ (types in the South African Museum and paratypes in the Transvaal Museum).

Length of body: about 4–8 mm.

Length of wing: about 5–9 mm.

Locality: Little Karoo: Vanwyksdorp (Mus. Exp., Oct. 1937); Oudtshoorn-Zebra (Mus. Exp., Oct. 1951). Karoo: Willowmore (Brauns, 7 Feb. 1925). Koup Karoo: Koup Siding (Mus. Exp., Oct. 1952); Gamkaspoot (Mus. Exp., Oct. 1937); Buffels River near Seven Weeks Poort (Mus. Exp., Oct. 1937); Buffels River near Merweville (Mus. Exp., Oct. 1940); Klaarstroom-Prince Albert (Mus. Exp., Oct. 1952); Letjiesbos (Mus. Exp., Oct. 1940). Moordenaars Karoo: Lammerfontein, north-west of Laingsburg (Mus. Exp., Oct. 1952). Tankwa Karoo: Kleinbrak near Tankwa River (Mus. Exp., Nov. 1952); Tankwa Karoo (Zinn and Hesse, Jan. 1949). Namaqualand: Goodhouse (Mus. Exp., Nov. 1936). Bushmanland: Henkries (Lightfoot, Oct. 1911) (allotype); Naib between Springbok and Pella (Mus. Exp., Oct. 1939). North-west Cape: Onseepkans (Mus. Exp., Oct. 1939). Griqualand West: Vryburg (Mus. Exp., Oct. 1939) (holotype); Niekerkshoop (Mus. Exp., Oct. 1939). South-West Africa: Otjituo (Tucker, Jan. 1920).

The ♀-allotype and a ♂-paratype were labelled as *fuscipennis* Ric. by Bezzi (p. 124, *Ann. S. Afr. Mus.*, xviii, 1921). According to Ricardo's description and



TEXT-FIG. 156. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of aedeagal structure of ♂ *Anthrax doliops* n. sp.

figures (p. 366 and pl. xxii, figs. 2 and 2a, *The Nat. Hist. of Sokotra and Abd-El-Kuri*, 1903) of *fuscipennis* s. str. this species differs from the latter in being much smaller, in having many white hairs in collar, on pleurae and prosternal parts and pale hairs on basal two-thirds of venter, and in having a distinct truncated extension of main infuscation beyond discal spot in marginal cell. It appears, however, to be very near *dentata* Beck. from Tunisia, which species is considered by Bezzi and other authors as synonymous with *fuscipennis*. According to Sack's description and figure of *dentata* (p. 529 and pl. 20, fig. 5, *Abh. Senckenb. Natur. Ges.*, 30, 1909) it differs from the latter in having the infuscation extending a little beyond discal spot in marginal cell, a less sinuous upper cubital branch, darker hair and hair-like scaling on pleurae, not entirely black legs and in being distinctly smaller. Compared with Engel's supplementary description and illustrations of *fuscipennis* (p. 430, *Die Fliegen d. Pal. Reg.*, lief. 99, 1936) this species differs from the latter in having a different type of hypopygium, in not having entirely black legs, its pale or whitish plumula, etc. This new species, however, appears to be very variable in the colour of the hair on the venter and in the extent of the infuscation in wings. Some specimens have a deeper clear gap in front of discal spot and the main infuscation does not extend a little beyond discal spot, in which respect they resemble *dentata*. In some the infuscation in basal part of axillary lobe is more extensive. In some ♂♂ the hairs in basal two-thirds of venter are pale as in ♀♀. One form which deviates from the typical form in its wing-pattern merits separate description:

Anthrax doliops var. *gamka* n.

This variety differs from the more typical specimens as follows:

Vestiture with the hairs in propleural tuft and prosternal part tinted greyish yellowish, those on venter gleaming pale in basal half and tuft on sides of tergite 1 mostly white; dark scaling across basal half of tergite 2 appearing reddish brownish. *Wings* with the costal cell and basal part up to level of second basal cell and less than basal half of anal cell and axillary lobe yellowish brownish and not so dark as in the more typical forms, the middle parts of cells in infuscated part usually more or less translucent, with a comparatively small and narrow spot on middle cross vein and base of second vein, this spot not or scarcely touching costal cell and broadly separated from basal infuscation and thus usually appearing isolated. The wing-pattern of this variety resembles those of the Palaearctic species *lucida* Beck. and *trifasciata* Meig., but the discal spot is even smaller, more isolated and infusion in anal cell is more developed.

From 8 ♂♂ in the South African Museum.

Length of body: about $3\frac{1}{2}$ –6 mm.

Length of wing: about 4–7 mm.

Locality: Koup Karoo: Gamkaspoort (Mus. Exp., Oct. 1937); Koup Siding (Mus. Exp., Oct. 1939); Rooinek Pass near Laingsburg (Zinn and Hesse,

Jan. 1949) (type); Seven Weeks Poort-Rooinnek Pass (Mus. Exp., Oct. 1952); Oukloof in the Beaufort West Div. (Zinn and Hesse, Jan. 1949). Tankwa Karoo: Kleinbrak (Mus. Exp., Nov. 1952). Moordenaars Karoo: Lammerfontein (Mus. Exp., Oct. 1952).

Anthrax doliops var. *fulviventris* n.

This is another variety of *doliops* which deserves a separate varietal rank and differs from the typical form and other forms in the following respects:

Body slightly larger and bulkier. *Vestiture* with the hairs in tufts on sides of tergite 1 entirely pale, white in front and yellowish or slightly fulvous posteriorly across hind margin; hairs on extreme inflexed sides of tergites and on venter distinctly more fulvous; scaling on abdomen above, apart from white ones across hind margins of tergites, mainly or entirely black. *Wings* with an identical dark blackish brown infuscation, but infuscation in axillary lobe and anal cell slightly more extensive and cloudiness or indication of spots on basal cross veins of third posterior and second submarginal cells, especially former, more distinct and conspicuous. *Head* with the interocular space in front of ocellar tubercle in ♂ tending to be broader, quite 3 times width of tubercle; slender part of antennal joint 3 distinctly longer, nearly twice length of broad base (only about as long as or only a little longer than base in other forms of *doliops*).

From 2 ♂♂ in the South African Museum.

Length of body: about 9 mm.

Length of wing: about 10 mm.

Locality: Koup Karoo: Dikbome (near Merweville) in the Laingsburg Div. (Mus. Exp., Oct. 1952) (type); Rietvlei in the Nieuvelid Escarpment (Beaufort West Div.) (Zinn and Hesse, Jan. 1949).

Anthrax leucurus n. sp.

♂-specimen in the collections agrees with the ♂ of *doliops* in most respects, differing only in having the extensions of the wing-infuscation beyond discal spot in marginal cell relatively shorter; the discal spot itself narrower; slightly more extensive white scaling on sides of tergite 4; and a different type of hypopygium in which the apical prongs of basal parts are distinctly narrower, less flattened, more rod-like, curving inwards like those of *caffer* and the beaked apical joints (text-fig. 157) are differently shaped.

From a ♂ in the Transvaal Museum.

Length of body: about 7 mm.

Length of wing: about 7 mm.

Locality: Griqualand West: Windsorton (Brauns, 10 Dec. 1920).

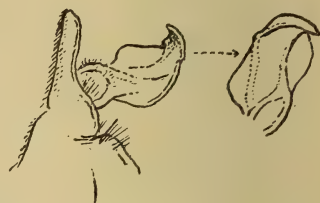


TEXT-FIG. 157. Dorso-apical and side views of right beaked apical joint of hypopygium of ♂ *Anthrax leucurus* n. sp.

Anthrax puncturellus Hesse(Hesse, p. 23, *Mem. do Mus. Dr. Alvaro de Castro*, No. 1, 1950.)

This species which I have fully described in the above-mentioned journal is characterized by the somewhat dimidiata infuscation in wings which occupies the basal and costal parts, extending from a little beyond middle of axillary and anal cells obliquely across base of discoidal cell to a large spot on middle cross vein, but with a clear gap or indentation just before latter spot and with the infuscation in marginal cell not or scarcely extending beyond discal spot and also by the presence of a small but constant spot at base of third posterior cell.

It agrees in most respects with *doliops*, but differs in having the main infuscation in wings scarcely extending or only for a very much shorter distance apicalwards in marginal cell beyond discal spot; in having a small but distinct spot at base of third posterior cell; in having a slightly longer terminal joint to third antennal joint which is about or only a little less than half length of slender part of latter joint; and in having the fine scaling on abdomen above entirely dark or black, especially in ♀, and that across hind margins of tergites and especially terminal tergites and their sides conspicuously white even in ♀ and not greyish or yellowish as in some forms of *doliops*. *Hypopygium* of ♂ differs in having slightly longer and more slender prongs and an entirely different type of beaked apical joints (text-fig. 158) which resemble those of the next species.



TEXT-FIG. 158. Side and dorsal views of right beaked apical joint of hypopygium of ♂ *Anthrax puncturellus* Hesse.

In the South African and Rhodesian Museums and the Museu Dr. Alvaro de Castro, Lourenço Marques.

Length of body: about 5 mm.

Length of wing: about 5-5½ mm.

Locality: South-West Africa (types from Kaross and Ombombo), Portuguese East Africa and Southern Rhodesia.

Anthrax cuthbertsoni n. sp.

Another species which belongs to the *doliops*-group and differing from the latter species in the following respects:

The wing-pattern is composed of a very dark blackish brown basal and costal infuscation and a large blackish brown spot on middle cross vein and base of second vein and which extends to infuscation in costal cell; no extension of infuscation extends beyond discal spot in marginal cell and clear gap before latter spot more developed, broad, and extending broadly to costal cell; faint spot-like infuscations also present at bases of third posterior cell and upper cubital branch, much like those present in *caffer*, but only very much fainter;

a distinct subopaquely whitish spot or streak also present near base of first basal cell. *Vestiture* with the hairs in propleural tuft and on pleural parts predominantly dark or black, or at least with much fewer whitish ones; hairs in basal part of venter, however, also whitish as in some ♂♂ of *doliops*; fine scaling on body above mainly black; white scales on last three tergites conspicuously developed, those on sides being long and broadish and also with some long ones on sides below on tergites 2 and 3. Terminal joint of slender part of antennal joint 3 subequal to length of slender part. *Hypopygium* of ♂ (text-fig. 159) differs from that of *doliops* in having the apical prongs slender, narrower and not so broad and flattened and an entirely different type of beaked apical joints. The latter differ from those of *puncturellus* in being broader, the dorsal subapical angle sharper and the extended inner dorsal margin more lobe-like and produced.



TEXT-FIG. 159. Side view of hypopygium and dorso-apical view of right beaked apical joint of ♂ *Anthrax cuthbertsoni* n. sp.

From 3 ♂♂ (type in the South African Museum, paratype in the Agricultural Department of Southern Rhodesia).

Length of body: about $5\frac{1}{2}$ –8 mm.

Length of wing: about $6\frac{1}{2}$ – $8\frac{1}{2}$ mm.

Locality: Portuguese East Africa: Pont on the Busi River (Cuthbertson, 30 Nov. 1939). Southern Rhodesia: Bindura (Cuthbertson, March 1932) (type); Chipitani Urungwe (23 Sept. 1938).

Anthrax eremobius n. sp.

Resembling both *doliops* and *caffer*, this species may be distinguished as follows: From the former it differs in having more pale or whitish hairs and hair-like scaling on pleurae and propleural part and on coxae in both sexes; in having pale gleaming hairs on venter and also white hairs on sides of tergites below in ♂; more pale or ochreous yellowish scaling on abdomen above and also more whitish scaling on thorax and scutellum; rows of white scales across hind margins of tergites apparently less interrupted discally, the white ones on last three tergites in ♂ almost uninterrupted discally; scaling on venter white, but comparatively much denser. *Wings* with a distinct subopaquely whitish streak near base of first basal cell; clear gap in front of discal spot broader and deeper than in *doliops*, extending almost to costal cell; spot on middle cross vein and base of second vein without any or with a very short extension apicalwards in marginal cell, in which respect the pattern resembles that of *cuthbertsoni*. *Hypopygium* of ♂ (text-fig. 160) differs from that of *doliops* in having the apical prongs longer and more slender; an entirely different type of beaked apical



TEXT-FIG. 160. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Anthrax eremobius* n. sp.

jagged, the apical part of these joints more truncated, and the medial, flattened, keel-like extension below apical part of aedeagal complex is wattle-like as in *hessii*.

The wing-pattern also resembles that of *dentata* Beck. as described and figured by Sack. From *dentata* it, however, appears to differ in having mainly pale hairs and hair-like scales on pleural and coxal parts; pale hairs on venter; more fine pale scaling on body above; relatively shorter terminal joint of antennal joint 3; and different type of beaked apical joints of the hypopygium of ♂.

From 2 ♂♂ and 1 ♀ (types in the South African Museum).

Length of body: about 6–8 mm.

Length of wing: about 6–9 mm.

Locality: Bushmanland: Aggenys (Mus. Exp., Oct. 1939) (types); Pofadder (Mus. Exp., Oct. 1939).

Anthrax intermedius Hesse

(Hesse, p. 173, *Ann. Transv. Mus.*, xvii, 1936.)

Fully described in the paper cited above, this unique ♀-specimen is characterized as follows:

Body black; hind margins of tergites on extreme sides and those of sternites pale yellowish brownish; tibiae and basal parts of tarsi yellowish brownish; sides of frons and face with silvery pruinescence. *Vestiture* on body above predominantly black, but hairs in front part of collar, notopleural tuft, mesopleural tuft, propleural tuft, pleurae, coxae, plumula, tuft on sides of tergite 1 and on venter (excepting the black ones on last sternite) white; hair on sides of abdomen rather sparse; scaling above predominantly white, including

longish hair-like ones on sides of thorax and on pleurae; some intermixed fine scales across basal half of tergite 2 and some along middorsal part and transversely across the other tergites ochreous yellowish; broader, flattened, white scales present transversely across hind margins, denser on sides, but apparently not much denser on sides posteriorly; fine scaling on venter mainly white; that on legs also whitish. *Wings* hyaline, infuscated yellowish brownish in costal cell and anteriorly in basal half of marginal cell and first basal cell; greater part of second basal cell hyaline and only extreme base of anal cell slightly tinged; infuscation on middle cross vein region slightly darker and more spot-like; another spot at base of fourth posterior cell also indicated; base of upper cubital branch without a distinct stump; middle cross vein distinctly before middle of discoidal cell; the latter rather narrowish; first posterior cell widely open, its sides almost subparallel; axillary lobe broader than anal cell. *Head* with the frontal groove shallowish; interocular space (♀) about 3 times width of tubercle; antennae (text-fig. 161) appearing narrowly separated, but space quite twice length of joint 1; joint 2 only a little broader than long; slender rod-like part of joint 3 distinctly shorter than long terminal joint, the latter slightly, but distinctly, broadened in the middle and thus slightly broader than apical part of slender part.



TEXT-FIG. 161. Side view of left antenna of ♀ *Anthrax intermedius* Hesse.

Type in the Transvaal Museum.

Length of body: about 7 mm.

Length of wing: about 8 mm.

Locality: Bechuanaland: Kuke Pan (Vernay-Lang Kalahari Exp., 21-30 March 1930).

Easily recognized by its wings which are only infuscated along front border, its whitish scaling, the long terminal joint of third antennal joint, etc.

Anthrax spathistylus n. sp.

Some ♂♂ and a ♀ which I take to belong to the same species are very near *intermedius* and are characterized by certain distinct sexual differences in the wing-infuscation which are not present in many other species of *Anthrax*. Compared with *intermedius* these specimens differ in the following respects:

Body with the reddish or yellowish hind margins of tergites on extreme sides below in the ♀ more reduced and the hind margins of sternites scarcely or only very narrowly pallid; the ♂ on the contrary with these parts conspicuously yellowish reddish, the entire last sternite being reddish; femora dark blackish brown to black, their apical parts below and the tibiae and tarsi yellowish. *Vestiture* very similar to that of *intermedius*, but with the propleural tuft tending to be tinted yellowish or slightly fulvous, with some or a few intermixed dark

bristly hairs on front and middle coxae and with the hairs on hinder part of venter darker or dark and pale-tipped, especially in ♀, these hairs in ♂ often gleaming more fulvous or reddish fulvous; scaling on head in front slightly more greyish yellowish or yellowish; that on thorax above composed of whitish, greyish or very pale greyish yellowish and dark or blackish intermixed ones; scaling on abdomen with deeper ochreous or more ochreous brownish ones across basal half of tergite 2 and other tergites, those on sides tending to be concentrated in patches of distinctly darker or blackish scaling; scaling on venter in ♀ at least with more brownish or ochreous ones among the white ones, especially laterally. *Wings* (pl. i, fig. 16) greyish hyaline, similarly infuscated in ♀, though second basal cell tends to be more clouded than in ♀ of *intermedius*; infuscation in ♂ as shown in figure, less uniform, only the costal cell being uniformly infused, the base of marginal cell, extreme base and subapical part



TEXT-FIG. 162. Side view of hypopygium, dorsal view of right beaked apical joint, and (below right) side view of left terminal lamella of ♂ *Anthrax spathistylus* n. sp.

of first basal cell and most of the second basal cell being clearer, the infuscation in this part thus reduced to more or less three spots and in addition with faint spots on other cross veins as shown; base of upper cubital branch in ♂ also tending to be less bent at right angles and without the vestigial stump present in ♀; middle cross vein usually a little before middle of discoidal cell, but sometimes even at about a third of this cell. *Head* with the terminal joint of antennal joint 3, which is also thickened in the middle, subequal to or slightly shorter than slender part of joint and with the bulb-shaped base of 3 relatively smaller than in other species of *Anthrax*. *Legs* with spines on all the femora below, those on hind ones in ♂ more numerous. *Hypopygium* of ♂ (text-fig. 162) with the apical prongs rather short, flattened and bluntly rounded; beaked apical joints not flattened,

ending in a beak-like process; lateral flange on each side baso-dorsally of basal strut not extending to apex as in other species. Dorso-apical angles of terminal lamellae bluntly tooth-like.

From 7 ♂♂ and 1 ♀ (holotype in the South African Museum and allotype in the Transvaal Museum).

Length of body: about 6–9 mm.

Length of wing: about 7–9 mm.

Locality: South Cape: Oudebosch on Riviersonderend Mts. (Wood, Jan. 1933) (holotype); Tradouw Pass, Swellendam Dist. (Mus. Exp., Nov. 1925). Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936). Natal: Durban (Leigh, 26 Dec. 1906) (allotype).

This species appears to be variable as regards certain wing-characters. The wing-pattern of the ♂ at least resembles that of the Egyptian *lucida* of Becker, but the latter species according to descriptions has black hair on the pleurae and darker fine scaling on abdomen above. Both *spathistylus* and *intermedius* are characterized by a reduced wing-infuscation, predominantly white or pale scaling on body above and a characteristic, somewhat spindle-shaped, terminal joint.

Anthrax kaokoënsis n. sp.

A species with uninfuscated wings and which is characterized as follows:

Body black; hind margins of tergites on extreme sides below and those of sternites reddish; femora blackish brown, the tibiae and tarsi reddish brownish. *Vestiture* with the hair on head and body above mainly black; anterior collar hairs, numerous hairs in mesopleural tuft, those in hinder part of propleural tuft, numerous ones on front coxae and on other coxae, plumula, basal tufts of tergite 1, hairs on venter and some intermixed with the black ones on sides of tergites sericeous whitish; longish hair-like scaling on pleurae and coxae also gleaming sericeous whitish; scales on head, sparse and fine ones and longish ones on thorax laterally whitish, but with fine black ones also present on disc of thorax and scutellum; fine scaling on abdomen above mostly dark, gleaming greyish or greyish brownish; flattened white scaling across hind margins of tergites dense on sides and on last two tergites; scaling on venter mainly white; that on legs greyish whitish to yellowish. *Wings* vitreous hyaline, only the extreme base, costal cell and narrow anterior basal part of first basal cell yellowish; a faint spot-like infuscation at base of third vein and along middle cross vein and a scarcely perceptible cloudiness on basal cross vein of fourth posterior cell; veins reddish brown; base of second vein originating at right angles opposite middle cross vein and with a short stump; middle cross vein much before middle of discoidal cell; upper cubital branch sinuous, with a slight backward loop, its base with a vestige of a stump; axillary lobe very much broader than anal cell. *Head* with the interocular space in ♂ not quite 3 times width of tubercle; antennae separated quite 2 times length of joint 1; joint 2 disc-shaped; terminal joint of joint 3 about half length of slender part. *Legs* with spines on all the femora. *Hypopygium* of ♂ (text-fig. 163) with the prongs of basal parts longish and slender; beaked apical joints laterally compressed, their dorsal and ventral edges expanded and the apical beak curved outwards and back-



TEXT-FIG. 163. Side view of greater part of hypopygium and dorsal view of right beaked apical joint of ♂ *Anthrax kaokoënsis* n. sp.

wards; aedeagal complex as in other species. Dorso-apical angles of terminal lamellae produced into a point.

From a ♂ in the South African Museum.

Length of body: about 7 mm.

Length of wing: about $7\frac{1}{2}$ mm.

Locality: South-West Africa: Kaoko Otavi in the Kaokoveld (Mus. Exp., March 1926).

Easily recognized by its hyaline and almost uninfuscated wings, in which respect it agrees with *elutus* (Bezz.) described farther on.

Anthrax muticus (Bezz.)

(Bezzi, p. 125, and pl. ii, fig. 22, *Ann. S. Afr. Mus.*, xviii; Bezzi, p. 168, *The Bombyliidae of the Ethiopian Region*, 1924.)

This species was described as a *Spongostylum* by Bezzi, but as has been pointed out in the generic descriptions of *Anthrax* and *Argyramoeba* the genus *Spongostylum*, as somewhat ill-defined by Bezzi, Engel and other authors for species in the Old World, is in part the *Argyramoeba* s. str. of Schiner. At most it may be considered as a sort of composite subgenus. Moreover certain characters of this species point to its inclusion in the *Chalcamoeba*-section of Sack rather than in the *Argyramoeba*, *Spongostylum* and *Molybdamoeba*-group. The characters of this variable species are as follows:

Body mainly black, but the area around the antennae, face, head below, sutural parts of pleurae and venter (♂) may be yellowish or yellowish reddish to a variable extent; first antennal joints yellowish, reddish, dark reddish, or sometimes black; hind margins of tergites laterally below and those of sternites usually distinctly, often broadly, yellowish reddish or reddish; hind margins of posterior tergites, especially in ♂, and sometimes even those discally may be reddish to a variable extent; femora dark blackish brown, sienna brownish or even black, their lower apical parts and apices usually paler, yellowish, or luteous to a variable extent; tibiae and tarsi luteous, but apical parts of latter usually dark. *Vestiture* mainly dark or black; hairs in collar, on humerus, in anterior part of mesopleural tuft, on propleural and prosternal parts, the plumula and dense tufts on sides at base of abdomen snow-whitish; those on propleural and prosternal parts and anterior part of mesopleural tuft sometimes gleaming fulvous yellowish to pale reddish yellowish in certain lights; hairs at extreme base of venter, especially in ♂, also sometimes sericeous yellowish or fulvous, those on rest of venter dark; fairly dense scaling on head in front whitish to yellowish whitish, or even yellowish; longish hair-like scales on sides of thorax, on pleurae and coxae snow-white; fine depressed scaling on thorax discally gleaming greyish, greyish yellowish to golden or even bluish opalescent and arranged more or less in three longitudinal bands, separated by bands of dark scales which gleam brownish in certain lights; scaling on scutellum mostly dark, those posteriorly silvery whitish; scaling on abdomen above very dense,

composed of white, greyish white, ochreous yellowish or ochreous brownish and dark or blackish brown ones, the latter arranged across basal half of tergite 2 and as a series of lateral spots which gleam brownish or brownish golden; broader, flattened, white scales arranged across hind margins, more densely laterally, more or less interrupted on tergite 2, very dense, conspicuous, brilliantly silvery, cuneiform and transversely arranged on sides of last two tergites in ♂ and narrower snow-white and not transversely arranged in ♀; dense white scales on sides of tergites extending round to venter between black tufts; scaling on venter also dense and white; that on femora whitish and yellowish, more yellowish on tibiae. *Wings* vitreous hyaline, but with the extreme base, costal cell and two large spot-like infuscations across base of third vein to apex of second basal cell and on middle cross vein and base of second vein respectively pale yellowish brownish to dark chocolate-brownish, the spot on middle cross vein usually extending a little apicalwards in marginal cell; clear area separating these spots usually not entirely hyaline, but cloudy to a variable extent, especially in ♀; second basal cell also infused to a variable extent, especially in ♀; second vein originating obliquely or at right angles opposite or more often a little in front of middle cross vein and more often without a basal stump; middle cross vein usually a little before middle of discoidal cell; upper cubital branch with or without a short basal stump; lower vein of discoidal cell sinuous, sometimes angularly sinuous and sometimes even with a stump at bend; axillary lobe a little broader than anal cell; halteres yellowish or brownish. *Head* with the interocular space in ♂ a little more than $2-2\frac{1}{2}$, and in ♀ $3-3\frac{1}{2}$, times width of

tubercle; antennae tending to be close together, separated by only a little more than length of joint 1, sometimes however a little less than twice length of latter, joint 1 sometimes tending to be long, at least as long as 2 and broad base of 3 together; joint 2 sub-barrel-shaped; broad base of 3 bulb-like, comparatively small, with a distinct short spine or tooth on inner lower aspect at base of slender part, the terminal joint rather stoutish, blunt, and variable in length, either a little shorter than half or about or more than half length of slender part. *Legs* with numerous spines on all the femora; tibiae with the upper rows of spicules longer and more numerous. *Hypopygium* of ♂ (text-fig. 164) without any apical prongs; beaked apical joints outwardly bifid apically and somewhat trihedral pyramidal; aedeagal structure with a ventrally directed hook-like apical process and on each side an additional blunt



TEXT-FIG. 164. Side view of hypopygium, dorso-apical view of right beaked apical joint, ventral view of left lateral strut, and (below left) left terminal lamella of ♂ *Anthrax muticus* (Bezz.).

trally directed hook-like apical process and on each side an additional blunt hook-like process; lateral struts broad, butterfly-wing-shaped. Last sternite

more or less indented apically, and dorso-apical angles of terminal lamellae not produced hook-like.

In the Commonwealth Institute, British, Transvaal and South African Museums.

Length of body: about 6-11½ mm.

Length of wing: about 7-11½ mm.

Locality: Southern Karoo, Koup Karoo, Western Cape, Western Karoo, Namaqualand, Bushmanland and North-west Cape.

In his comparative description Bezzi compared this variable species with *Argyramoeba incisuralis* (Macq.) of which he suggested it may be only a variety.

This contention which is due to a careless comparison is, however, entirely erroneous for though the wing-pattern of these two species may be superficially alike, the shape of the second antennal joint, the entirely black tufts on side of abdomen, absence of tufts of long, hair-like scales on sides of abdomen, distinct differences in the wings and the different type of hypopygium are all characters which separate it both specifically and generically from *incisuralis*.

Anthrax elutus (Bezz.)

(Bezzi, p. 125, *Ann. S. Afr. Mus.*, xviii, 1921, as a var. of *muticus*.)

The type of this species was described by Bezzi as a variety of the preceding species. A comparison of this ♀-specimen with numerous ♀♀ of *muticus* showing various degrees of variation, however, shows that this variety of Bezzi is sufficiently distinct to be elevated to a separate specific rank. Compared with *muticus* both sexes show the following characters and differences:

Vestiture on humerus, in collar, entire mesopleural tuft, on coxae and on greater part of venter pale, gleaming pale sericeous yellowish or creamy, there being no intermixed black hairs in mesopleural tuft and on coxae as in *muticus*; tufts on sides of abdomen not entirely black; a tuft on sides of tergite 2 and some intermixed ones on sides of some of the other tergites whitish or creamy yellowish; scaling on disc of thorax predominantly greyish yellowish, the slightly darker bands composed of slightly deeper yellowish and not conspicuous black scales or black bands; that on scutellum greyish yellowish, not blackish brown or black discally; scaling on abdomen mostly pale, composed of greyish yellowish to ochreous yellowish scales and transverse bands of whitish or pale greyish yellowish scales across hind margins of all the tergites, there being no patches of dark or blackish brown ones. *Wings* entirely glassy hyaline, only extreme base, costal cell and anterior basal part of first basal cell slightly subopaquely yellowish whitish, not brown or chocolate-brownish, with only very faint, scarcely perceptible, spot-like cloudiness on middle cross vein and basal vein of fourth posterior cell; both the second vein and upper cubital branch without distinct basal stumps; middle cross vein much before middle of discoidal cell, nearer base of latter than in *muticus*. *Head* with the interocular space on

vertex in ♂ about 2 times and in ♀ about 3 or a little more times width of ocellar tubercle; antennal joint 2 sub-barrel-shaped or bead-shaped; bulbular base of joint 3 bulb-shaped, its terminal joint quite half as long as slender part. *Legs* with fewer spines on hind femora below.

From a ♂ and 4 ♀♀ in the South African Museum.

Length of body: about 7-9 mm.

Length of wing: about 7-9 mm.

Locality: Bushmanland: Jakkalswater (Lightfoot, Oct. 1911) (type); Naib between Springbok and Pella (Mus. Exp., Oct. 1939). North-west Karoo: Augusfontein near Calvinia (Mus. Exp., Sept. 1947). Karoo: Vondeling near Willowmore (Mus. Exp., Oct. 1952).

Easily recognized by its hyaline and almost uninfuscated wings. It can only be confused with *kaokoënsis* from which it is distinguished by the denser hair and scaling, the entirely creamy yellowish hairs in collar, on humerus, in mesopleural tuft and in propleural parts, creamy hairs on sides of some tergites, predominantly pale scaling on abdomen, less sinuous upper cubital branch, more oblique and stumpless base of second vein, less widely separated antennae, more barrel-shaped second antennal joint, etc.

Anthrax trisinuatus n. sp.

This characteristic species is characterized as follows:

Body black; sides of frons and face silvery pruinulent, the frons in front with bronzy pruinescence; first antennal joints red, piceous reddish to very dark reddish; sutural parts of pleurae dark reddish brown to a variable extent; hind margins of tergites on inflexed sides below and those of sternites fairly broadly reddish or yellowish reddish, and hind margins of last three tergites in ♂ also reddish; femora pale reddish brownish to sienna-brownish, sometimes almost blackish brown, their upper surfaces and apices sometimes darkened, the tibiae and tarsi very slightly paler, more yellowish. *Vestiture* with the hairs and bristly hairs above and below mainly black, but hairs anteriorly in collar, numerous ones on humeral part, in mesopleural tuft, in propleural and prosternal tufts (especially in ♂), in tuft on sides of tergite 1 and some intermixed ones among black tufts on sides of other tergites and on inflexed sides below white (tuft on sides of tergite 1 sometimes tinted slightly yellowish); propleural tuft sometimes tinted slightly yellowish, usually also with a few black bristles present on prosternal part of propleural tuft, especially in ♀; plumula black; genital brush in ♀ yellowish; scales on head in front rather sparse, dark or black, gleaming brownish in certain lights; those behind eyes also mainly dark; fine scaling on rest of body above predominantly dark or black, gleaming brownish in certain lights, but with some paler more greyish white ones discally on thorax in front, sometimes ochreous brownish on thorax above and abdomen posteriorly in some specimens; longish and dense hair-like scales on sides and base of thorax and across hind part of scutellum gleaming silvery or snow-white; those on

pleurae and coxae also white or greyish white; broader, white scales on abdomen present across hind border of tergite 2 and interrupted across 3 and 4 where they are dense on sides only and very dense on almost entire last three tergites in ♂ where they do not occur transversely, also with a central patch of white scales apically on tergites 2, 3 and 4; scaling on venter mostly white; that on legs greyish white, mainly dark or greyish yellowish on upper and apical parts of femora and on tibiae. *Wings* (pl. i, fig. 17) vitreous hyaline, but with an anterior and costal very dark blackish brown or very dark chocolate-brownish infuscation extending obliquely across from apex of second basal cell (or base of fourth posterior cell) to near apex of costal cell and also occupying slightly less than basal half of anal cell and anterior basal part of axillary lobe; its hind border with three indentations, in anal cell, at base of discoidal cell and at base of first posterior cell respectively; the infuscation on apical part of second basal cell and on middle cross vein region slightly darker and more spot-like, but without any spots on cross veins in hyaline part except for a faint short streak sometimes present in middle of basal half of first posterior cell; second vein originating obliquely a little in front of middle cross vein, rarely more at right angles or with a stump; middle cross vein usually a little before middle of discoidal cell, sometimes however nearer middle; upper cubital branch usually oblique at base and without a stump, rarely with a vestigial stump; axillary lobe broader than anal cell, entirely hyaline except for a dark anterior streak along infuscation in anal cell; squamae black or dark in basal half, the



TEXT-FIG. 165. Side view of greater part of hypopygium, and dorsal view of right beaked apical joint of ♂ *Anthrax trisinuatus* n. sp.

broad hind margin or part whitish and white-fringed; knobs of halteres yellowish in apical part above. *Head* slightly tumidly prominent and rounded anteriorly; interocular space in ♂ at its narrowest part about 2 or a little more times and in ♀ about $2\frac{1}{2}$ –3 or nearly 4 times width of tubercle; antennae separated by a space not quite twice length of joint 1; joint 2 sub-barrel-shaped, slightly broader than long; terminal joint of 3 rather stoutish, appearing blunt apically and in ♂ distinctly subequal in length to or a little longer, and in ♀ a little shorter, than slender part; proboscis short, stumpy, its labellar lobes broadish, spinuliferous

and longer than base. *Legs* with spines on all the femora, those on hind ones tending to be duplicated basally below in ♂; front tarsi a little stouter and more hairy in ♀ than in ♂. *Hypopygium* of ♂ (text-fig. 165) resembles that of *muticus* in not having apical prongs; ventral margin of basal parts below beaked apical joints less expanded; beaked apical joints slightly different in shape, not markedly bifid apically; aedeagal structure with only one lateral process on each side apically. Dorso-apical angles of terminal lamellae as in *muticus*, not produced into a sharp point.

From 29 ♂♂ and 34 ♀♀ (types in the South African Museum and paratypes in the British Museum and Commonwealth Institute).

Length of body: about $4-10\frac{1}{2}$ mm.

Length of wing: about $5-11\frac{1}{2}$ mm.

Locality: Bushmanland: Nâib between Springbok and Pella (Mus. Exp., Oct. 1939). Namaqualand: Springbok-Kamieskroon (Mus. Exp., Oct. 1939); Kamieskroon (Mus. Exp., Sept. 1930); Bowesdorp (Mus. Exp., Nov. 1931); Steinkopf (Smithers, Nov. 1941). Western Karoo: Calvinia (Ogilvie and Mackie, 11-16 Nov. 1931); East of Pakhuis Pass (Mus. Exp., Sept. 1947). Nieuveld Karoo: Melton Wold in Victoria West Dist. (Mus. Exp., Oct. 1935); Leeukloof in Beaufort West Dist. (Mus. Exp., Oct. 1935). Lammerfontein in the Moordenaars Karoo north-west of Laingsburg (Mus. Exp., Oct. 1952). Koup Karoo: Merweville (Mus. Exp., Oct. 1940); Koup Siding in Laingsburg Div. (Mus. Exp., Oct. 1952) (types); Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952); Lammerskraal in Prince Albert Dist. (Mus. Exp., Sept. 1947); Klaarstroom in Prince Albert Dist. (Mus. Exp., Oct. 1952); Rooinek Pass-Seven Weeks Poort (Mus. Exp., Oct. 1952). Little Karoo: Oudtshoorn-Zebra (Mus. Exp., Oct. 1951); Uniondale Dist. (Mus. Exp., Oct. 1952). Southern Karoo: Montagu (Turner, 1-21 Oct. 1924). Tankwa Karoo: Waterval (Mus. Exp., Nov. 1952). West Cape: Leipoldville-Elands Bay (Mus. Exp., Nov. 1948); Citrusdal Dist. (Mus. Exp., Nov. 1948).

Easily recognized and distinguished from all other South African species by the predominantly dark scaling on body and by its characteristic wing-infuscation which is very much like that of *Thyridanthrax abruptus* or certain species of *Exoprosopa* (i.e. *sigmoidea* and *tuckeri*). The only other species of *Anthrax* which it resembles very closely and with which it may be confused is a species from Sierra Leone and Nigeria which Bezzi described as *Spongostylum subanthrax* (p. 169, *The Bombyliidae of the Ethiopian Region*, 1924). From the latter, however, it appears to differ in not having a small spot-like infuscation at base of third posterior cell, no recurrent veinlets at bases of second vein and upper cubital branch, in having a black plumula, black hair on venter, predominantly dark scaling on head and body above, more yellowish or reddish yellowish legs, etc. This species, like *muticus* and *elutus*, are transitional in characters between *Anthrax* on the one hand and *Argyramoeba* s. str. on the other.

Gen. *Argyramoeba* Schin.

The following species belong to the series which have been referred to *Spongostylum* (nec Macquart) or *Molybdamoeba* by Bezzi and Engel, and which are easily distinguished by the flattened, bowl-shaped or saucer-shaped second antennal joint (text-fig. 134) which is very concave apically and into which the bulbular basal part of joint 3 fits like a ball in a socket. In all the species the long hairs on sides of tergites 2-5 are also in the form of white and black tufts of long, flattened, lanceolate scale-like hairs. The white scales on abdomen posteriorly are usually duller, more cretaceous whitish and not brilliantly silvery

whitish as in the majority of ♂♂ belonging to the previously described species of *Anthrax*. The claws of the ♂♂ in this group are usually more obviously developed and longer than in the ♀♀. The hypopygium of the ♂♂ also differ in many important respects as is evident from a comparison of the text-figures.

Argyramoeba punctipennis (Wied.)

(Wiedemann, p. 293, *Aussereurop. Zweifl. Ins.*, i, 1828; Loew, p. 211 and tab. ii, fig. 15, *Dipt. Faun. Südaf.*, i, 1860; Bezzi, p. 618, *Trans. Ent. Soc. Lond.*, 1911; Bezzi, p. 126, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 174, *The Bombyliidae of the Ethiopian Region*, 1924.)

In view of the fact that there are other species which resemble *punctipennis* in the number of spots in the wings, it is doubtful whether all the species from other parts of Africa, which Bezzi referred to this species, actually belong to it. The species *Anthrax sexnotata* described by Macquart in 1855 (p. 77 and tab. 3, fig. 14, *Dipt. Exot., Suppl.* v) from an unknown country agrees with this species as far as the short description goes and may prove to be merely a synonym of this species. This species is characterized as follows:

Body mainly black; bare part of face, sutural parts of pleurae, especially in ♂, sometimes yellowish; antennal joints 1 and 2 to a variable extent, hind margins of tergites, more broadly on sides, entire inflexed sides, broad hind margins of sternites and in ♂ usually entire or greater part of venter pale yellowish reddish or ochreous reddish; third antennal joints reddish, sienna-brownish, to blackish brown; femora blackish brown to reddish brown, their under-surfaces and lower apical parts usually yellowish; tibiae and tarsi also pale yellowish reddish or luteous, the apical parts of latter dark. *Vestiture* with the erect hairs on frons and body above mainly black; those on face in front in ♂ composed of black and pale ones, the latter gleaming yellowish or reddish on sides in front; those on face in ♀ predominantly sericeous yellowish or pale yellowish reddish, sometimes with a few intermixed dark ones; hairs in collar or front part of collar, on humeral part, mesopleural tuft, on propleurae, pleurae, in plumula, in tuft on sides of tergite 1 and on entire venter sericeous whitish, usually with a few dark or black bristles in mesopleural tuft; bristles on coxae usually sericeous or pale yellowish reddish, but with some intermixed black ones in ♂ especially; dense tufts on sides of tergites 2 and 4 and anteriorly on 5 composed of long, flattened, lanceolate, scale-like black hairs (or scales), a few black bristles, and intermixed pale bristles, each of the scale-like hairs (or scales) terminating in a hair-like point; tufts on sides of tergite 3 composed of long similarly shaped white scale-like hairs (or scales) and some intermixed black bristles; bristles on sides of tergites 6 and 7 in ♂ gleaming sericeous whitish, those in ♀ with some black ones also; scales on head in front dense, yellowish to pale ochreous yellowish, but a spot on each side in front of a black spot a little distance in front of ocellar tubercle and a patch on each side above antennae more whitish like the white scales on face; fine hair-like scales on thorax in form of three

bands of whitish ones separated by reddish brownish ones and as a transverse patch of whitish ones across middle; longer hair-like ones on sides of thorax and also basally whitish; those on disc of scutellum reddish brown, but with a medial band and posterior arc of whitish ones; hair-like scaling on pleurae and coxae white; fine scaling on abdomen above composed of a broadish mid-dorsal band of rufous or reddish brown scales, more yellowish or ochreous yellowish ones transversely across tergites on sides, and longish hair-like whitish ones on sides of tergite 1; broad, flattened, snow-white scales arranged across



TEXT-FIG. 166. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of apical part of guide of ♂ *Argyrotaenia punctipennis* (Wied.). (The arrow indicates the normal and natural position of the aedeagal structure in the living insect.)

hind margins, interrupted in middle and dense and conspicuous on sides, scarcely interrupted discally on last four tergites, much denser, longer, broader, and more cuneiform on last three tergites; scaling on venter white, longer on sides; scaling on legs mainly white, more yellowish on tibiae. *Wings* vitreous to slightly hyaline; extreme base, costal cell and anterior basal part of first basal cell subopaquely yellowish, with 6 or 7 brownish or blackish brown spots as follows: three large conspicuous ones at base of vein between basal cells, at base of third vein and on middle cross vein region respectively, two smaller ones at base of fourth posterior cell and base of upper cubital branch respectively, a still smaller one at base of third posterior cell and sometimes with a faint spot at apex of discoidal cell; veins yellowish or reddish brown; stumps present at bases of both second vein and upper cubital branch; middle cross vein a little before middle of discoidal cell; axillary lobe broader than anal cell. *Head* with the interocular space in ♂ nearly or about 3, and in ♀ about 4, times width of tubercle; antennae separated by a little more than twice length of joint 1; joint 2 disc-shaped; base of 3 roundly bulb-shaped, terminal element of 3 a little shorter than slender part in ♂, about half or a little less than slender

part in ♀. *Legs* with numerous spines on all the femora below. *Hypopygium* of ♂ (text-fig. 166) large and conspicuous, with longish and stiff hairs on basal parts, without any apical prongs; beaked apical joints more or less wrench- or spanner-shaped, the apical beak curved upwards and outwards; aedeagal complex very conspicuous and characteristic, in the form of a long curved aedeagal part suspended in membranes and a sort of V-shaped guide through which it can slide to and fro; aedeagus itself with a spine-like process near apex beyond which it is in the form of two symmetrical wire-like processes, each of which is spirally twisted apically; guide with a short dentate process on each side apically below; lateral struts very much reduced and rudimentary, in form of two lobes; basal strut bat-shaped, rotated and directed apically within and between the two shell-like basal parts. Dorso-apical angles of terminal lamellae not produced hook-like.

In the Transvaal and South African Museums and Commonwealth Institute.

Length of body: about 8–12 mm.

Length of wing: about 9–13 mm.

Locality: South-western Cape, Great Karoo, Nieuveland Karoo, Namaqualand and North-eastern Karoo.

Argyramoeba punicisetosa Hesse

(Hesse, p. 398, *South African Animal Life*, ii, 1955.)

Two ♂♂ and a ♀ specimen which I take to be the same species were described by me in the above-mentioned journal, as a distinct species differing from the very closely related *punctipennis* in the following respects:

Body with the sides of abdomen above distinctly broader reddish yellow; femora with at least apical halves of front and middle ones more extensively reddish. *Vestiture* with the bristly hairs on face in ♂ with constantly fewer black intermixed ones and with the pale ones gleaming more reddish golden; those on face in ♀ also reddish golden but with more numerous black ones; humeral tuft, mesopleural tuft, propleural tuft and hairs on coxae with distinctly more numerous and more conspicuous pinkish or pale reddish golden bristles and bristly hairs; hair on pleurae appearing more yellowish; scaling on head deeper yellowish; pale scaling on body above deeper reddish or rufous golden and white ones on thorax slightly shorter; snow-white scales across hind margins of tergites shorter, comparatively broader, cuneiform in shape even from tergite 2 to apex and with the dense ones on last three segments also broader and shorter than in *punctipennis*; long scales or scale-like hairs on sides of abdomen, especially in ♂, relatively shorter, broader, more strap-like, blunter, truncated and with much shorter points, not spear-blade-shaped. *Antennae* with the terminal joint of joint 3 only a little or scarcely longer than slender part. *Hypopygium* of ♂ (text-fig. 167) entirely different from that of *punctipennis* (cf. text-fig. 166) with the beaked apical joints different in shape; medial apical part of aedeagal guide spout-like; aedeagus with enormously long wire-

like processes beyond spine-like process which is near base and not near apex and it is the long wire-like process and not the main part of aedeagus which is suspended in membranes.

From 2 ♂♂ and 1 ♀ (holotype in the Transvaal Museum and allotype in the Zoological Institute of the University of Lund).

Length of body: about 9 mm.

Length of wing: about 10 mm.

Locality: North Transvaal: North-eastern Zoutpansberg Dist. (Breyer, 7 Sept. 1916) (holotype). Northern Rhodesia: Victoria Falls (H. G. L., 31 Aug. 1920). South-West Africa: Anabib (Orupembe) in the Kaokoveld, 100 miles west of Ohopoho (Brinck and Rudebeck, 7-9 June 1951) (allotype).

Argyramoeba robustalis n. sp.

This comparatively large and bulky species resembles both *punctipennis* and *incisuralis*. When compared with the former it shows the following distinguishing features:

Body much larger and more bulky; antennal joints 1 and 2 darker; hind margins of tergites only reddish discally from tergite 4 in ♂, and then much narrower reddish, not or very obscurely reddish in ♀; sides of abdomen less broadly reddish and even apical part in ♂ less extensively reddish. *Vestiture* with most of the pale bristles in humeral tuft, numerous ones in mesopleural tuft, on coxae, across hind margin of tergite 1 and on extreme sides of tergites 4 and 5 below gleaming pinkish or deep reddish golden; most of the pale hairs in collar also tinted reddish golden; black and white tufts on sides of abdomen composed of relatively longer and narrower scale-like hairs; coxae with fewer intermixed black bristles; white scales across hind margins of tergites more elongate and narrower. *Wings* more greyish hyaline, the base and anterior part tending to be darker, more subopaquely yellowish and in ♀ the costal cell and basal and anterior part up to level of apical parts of basal cells and in marginal cell even tinged more yellowish brownish; usually with only 6 spots present, the one on middle cross vein and at base of third vein relatively larger, the spot at apex of discoidal cell entirely wanting. *Head* with the slender part of antennal joint 3 relatively longer and about $1\frac{1}{2}$ times (♂) and about or nearly 2 times (♀) as long as terminal joint. *Legs* with the front tarsi in ♂ distinctly and relatively longer than in *punctipennis*. *Hypopygium* of ♂ (text-fig. 168) entirely different; beaked apical joints not wrench-shaped; aedeagal structure entirely differently shaped, its basal part globularly dilated as in the *incisuralis*-group, with its apical half confined to guide, not projecting beyond; guide itself ending apically



TEXT-FIG. 167. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of apical part of guide of ♂ *Argyramoeba punicisetosa* Hesse.

in a ventrally directed median spine-like process; lateral struts ear-shaped; dorso-apical angles of terminal lamellae as in *punctipennis*, not hook-like.



TEXT-FIG. 168. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ *Argyramoeba robustalis* n. sp.

Length of body: about 14–15 mm.

Length of wing: about $16\frac{1}{2}$ mm.

Locality: Zululand: Mfongosi (Jones, April–May, 1934) (holotype). Southern Rhodesia: Bindura (allotype); Bembesi River (Rhod. Mus., April 1937).

Argyramoeba pycnopeltis n. sp.

A remarkable species which, like the one described below, differs from all the other known South African species in this category in certain important respects. It can only be confused with *robustalis* and the other species described below and to a lesser extent with forms of *incisuralis*. *Body* mostly black; basal part of face, sutural parts of pleurae and postalar callosities dark reddish brownish to a variable extent; antennal joints 1 and 2, broadish hind margins of tergites, especially sides of 2 and 3 and entire margins of the others, more broadly on sides and in ♂ almost entire last two tergites, the entire inflexed sides and very broad hind margins of sternites and entire last sternite yellowish reddish; femora yellowish or reddish brownish, their upper surfaces darkened; tibiae and tarsi pale reddish brownish, the apical parts of latter darkened. *Vestiture* with the bristly hairs on frons to near antennae, those on body above and some on trochanters black; hairs on face, antennae below, sides of face at level of antennae, dense ones on occiput, those in front part of collar, on entire pleural and sternal parts, in plumula, on disc and sides of tergite 1, on venter and on

From *incisuralis* this species differs in its large size, in having 6, and not 4 or 5, spots in wings (the one at base of third vein included) of which the one at base of third posterior cell is large and not faint or wanting, in having reddish golden bristles on humerus, in mesopleural tuft, on coxae and across hind margin of tergite 1 laterally, more conspicuous red hind margins to tergites and sternites and in the hypopygium (cf. text-figs. 168 and 170) in which the beaked apical joints are relatively longer, narrower and more slender, the apical part of guide is slightly different, the spherical part of aedeagus is larger and the lateral struts broader.

From 1 ♂ and 2 ♀♀ (holotype in the South African Museum and allotype in the Rhodesian Museum).

inflexed sides of tergites and, in ♂, on almost entire sides of abdomen posteriorly gleaming sericeous or silvery whitish; some bristles in mesopleural tuft, on coxae and sides of abdomen gleaming pinkish or reddish golden in certain lights and also with a few reddish-tipped dark ones in mesopleural tuft and below wings; scales on middle part of frons greyish, the dense ones on front part, very dense on sides and the dense ones on face silvery whitish; longish hair-like scales on sides of thorax above and very dense ones on pleurae and coxae shining silvery whitish; finer ones on disc of thorax composed of bands of gleaming reddish or brownish golden ones and dark ones, those across base of thorax white, those discally on scutellum brownish or yellowish; fine scaling on abdomen appearing brownish or ochreous brownish, but also with much dark scaling transversely across basal halves of tergites; broadish white scaling on abdomen as in other species; dense tufts of flattened, scale-like hairs (or scales) on sides relatively shorter than in other species, brownish or blackish brown on basal half of tergite 2 and on sides of 4 and snow-white or silvery on sides of apical part of 2 and sides of 3, the individual scales broader and more strap-like than in *robustalis* and *incisuralis* and their apices more bluntly pointed or even rounded; scales on venter mainly white; that on legs greyish whitish. *Wings* greyish hyaline; extreme base, costal cell and anterior basal part of first basal cell subopaquely yellowish whitish; four constant and fairly large brownish spots usually present, but sometimes also with a faint one at base of upper cubital branch and another very faint or indistinct one at apex of discoidal cell. *Scutellum* differing from that of other species in being discally more tumidly prominent or inflated and with the hind margin more distinctly semicircularly rounded. *Head* with the ocellar tubercle distinctly more elongated, very much longer than broad and the anterior ocellus larger than the hind ones; interocular space in ♂ nearly 3, and in ♀ a little more than 3 (about 4), times width of tubercle; antennae more widely separated in ♀ than in ♂; joint 2 saucer-shaped; slender part of 3 a little more than twice as long as terminal joint in ♂, nearly or quite 4 times in ♀. *Legs* with spines on all the



TEXT-FIG. 169. Dorsal view of right beaked apical joint, side view of same, and side view of guide of ♂ *Argyrotaenia pycnopeltis* n. sp.

femora below, those on hind ones more numerous, especially basally; front tarsi in ♀ distinctly less modified and hairy than in other species of this group, with longer and more conspicuous spicules below; claws in ♂, especially front ones, more sickle-shaped than in ♀. *Hypopygium* of ♂ (text-fig. 169) resembles that of *robustalis*, but the beaked apical joints are slightly different in shape, having a relatively higher, steeper and narrower crest basally above; ventrally directed processes at apex of guide wider apart and longer; lateral struts smaller, more tongue-shaped, and basal globular part of aedeagus smaller.

From a ♂-holotype in the Transvaal Museum and a ♀-allotype in the South African Museum.

Length of body: about 12–14 mm.

Length of wing: about 12–14 mm.

Locality: Karoo; Willowmore (Brauns, 10 Nov. 1920) (holotype) and 20 Dec. 1921 (allotype).)

Argyramoeba aetheocoma n. sp.

This species is very near *pyncopeltis*, agreeing and differing from it in the following respects:

Body also mainly black, but with antennal joints 1 and 2 darker; reddish brownish infusions on pleurae less extensive; coxae and greater part of femora above dark, not reddish brownish; hind margins of tergites slightly narrower reddish. *Vestiture* very similar, but hairs and scales on face not entirely silvery white, duller whitish and even slightly tinted yellowish and with numerous black hairs across hinder part of this facial tuft; hairs and scales on body below duller whitish, not so silvery, but intermixed bristles in mesopleural tuft and on coxae also sometimes gleaming pinkish golden; fine scaling on body above (where still indicated in specimens) deep reddish or ochreous brownish; flattened white scaling on abdomen above also arranged across hind margins of tergites 2–7 and also denser and longer on sides and inflexed sides but the scales on the whole distinctly shorter and the hairs on sides of abdomen also shorter and sparser; a tuft of blackish brown hair-like scales or scale-like hairs present only on sides anteriorly of tergite 2 and without any distinct dark tuft on sides of 4 and extreme base of 5 as in *pyncopeltis*; scaling and hairs on venter similar; that on legs greyish whitish, becoming more yellow (or yellowish brownish) in apical two-thirds of femora. *Scutellum* rather convex discally and semicircularly rounded posteriorly as in *pyncopeltis*. *Wings* smoky greyish hyaline, becoming imperceptibly a little darker at base, costal cell, first and second basal cells, basal part of discoidal cell, basal two-thirds of marginal cell, basal part of first submarginal cell and extreme base of first posterior cell; spot-like infuscations on cross veins as in *pyncopeltis* and also with fainter ones at apex of discoidal cell and base of second submarginal cell respectively; middle cross vein however a little more before middle of discoidal cell. *Head* with the interocular space on vertex in ♀ also more or less 4 times width of ocellar tubercle;

the latter also slightly longer than broad but on the whole smaller; terminal joint of slender part of antennal joint 3 also markedly small, only about a fourth length of slender part; proboscis apparently a little stouter and plumper. *Legs* very similar, but with fewer and less numerous spicules on outer upper part of hind tibiae and these in only a single row, not duplicated or triplicated as in *pyncopeltis*; front tarsi similar and less modified than in other species, the basal joint with conspicuous spicules.

From 2 ♀♀ in the South African Museum.

Length of body: about 11½–13 mm.

Length of wing: about 11½–12 mm.

Locality: Upper sources of the Olifants River in the Ceres Div. (Mus. Exp., Dec. 1949).

This is the only known South African species of *Argyramoeba* which has no distinct dark tuft of hair-like scales or scale-like hairs on sides of tergite 4.

Argyramoeba incisuralis (Macq.)

(Macquart, p. 57, and tab. 20, fig. 4, *Dipt. Exot.*, ii, 1840; Bezzi, p. 618, *Trans. Ent. Soc. Lond.*, 1911; Bezzi, p. 125, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 83, *Broteria* (Ser. Zool.), xx, fasc. ii, 1922; Bezzi, p. 172, *The Bombyliidae of the Ethiopian Region*, 1924; Bezzi, p. 223, *Bull. Soc. Roy. Ent. Egypte*, 1924/5; Engel, p. 444, *Die Fliegen d. Pal. Reg.*, lief. 99, 1936.)

(Syn. = *mixtus* Loew, p. 212 and tab. ii, fig. 16, *Dipt. Faun Südaf.*, i, 1860; Hesse, p. 174, *Ann. Transv. Mus.*, xvii, 1936.)

This species which Macquart described from the Cape is one of the commonest species in all the provinces of the Union and also in South-West Africa, Bechuanaland, Northern and Southern Rhodesia. It is also recorded from other parts of Africa and from Northern Africa, but as there are certain Palaearctic species, such as *ocyale* Wied. and *tripunctata* Wied., which have similarly spotted wings, the occurrence of this species and its varieties north of the Sahara, needs more careful investigation and comparison with the original type-material to exclude the possibility that these North African records do not refer to races or varieties of the latter two species. From the description and the figure of the wing, *Anthrax biappendiculatus* which Macquart wrongly described from Oceania in 1855 (p. 75 and tab. 3, fig. 11, *Dipt. Exot.*, *Suppl.* v) appears to be a synonym of this species. As this species is found in a variety of topographical, geological, climatic and ecological environments it is very variable and has developed a series of racial or varietal forms, some of which are sufficiently distinct to merit description as separate forms, whereas others are so variable or transitional that they show no constant varietal characters. The semi-arid and drier parts of Southern Africa seem to be the type of environment where this species seems to thrive best and where representatives of it may be obtained almost throughout the year. From Loew's description of *mixtus* it is quite clear that Bezzi was right

in relegating the latter species as a synonym of *incisuralis*. The chief distinguishing characters of this species, as based on the very large number of specimens in the collections before me, are as follows:

Body mainly black; bare part on face and sutural parts on pleurae sometimes brownish or sienna-brownish to a variable extent; antennal joints 1 and 2, especially 2, tending to be reddish in some specimens; hind margins of tergites, especially on sides, more constantly in hinder part of body in ♂, to a lesser extent in ♀, the inflexed sides of tergites and hind margins of sternites to a variable extent yellowish reddish or reddish; venter almost entirely yellowish reddish in some ♂♂ whereas in some ♀♀ hind margins of sternites are only obscurely reddish; coxae and femora dark blackish brown or black, lower apical parts of latter and sometimes even apical halves of front femora yellowish to a variable extent; tibiae and tarsi usually yellowish, with the upper surfaces or even entire hind ones and sometimes anterior surfaces of the others and apical parts of tarsi darkened. *Vestiture* with the hairs on frons and body above mainly black; those on antennae and on face in ♂ also black, but with numerous intermixed or even predominantly whitish or sericeous yellowish ones in ♀; hairs in anterior part of collar, intermixed ones on humerus, entire propleural tuft, prosternal hairs, almost entire mesopleural tuft, most of the hairs on coxae, those on pleurae, plumula, tuft on sides of tergite 1, on almost entire venter, on inflexed sides and hairs among white scales on sides of tergite 3 snow- or sericeous whitish; those in mesopleural tuft sometimes appearing more creamy yellowish and usually with some intermixed pale yellowish reddish and some dark ones in the latter tuft, on humerus and coxae; bristly hairs on last sternite usually black, more so in ♀; scales on frons and face whitish, yellowish white or golden, denser on sides of frons in front and on face; fine scaling on disc of thorax composed of bands of whitish or greyish and greyish yellowish or yellowish brownish to even reddish brownish or fox-reddish ones, those on sides and across base longer and whitish; some transverse spots or patches of dark scales present in hinder half between wings and on a submedial spot anteriorly on each side and also along middle anteriorly; scales on disc of scutellum ochreous yellowish to fox-reddish, that across apex white or silvery; longish hair-like scales on pleurae and coxae gleaming snow-whitish; fine scaling on abdomen above mostly yellowish, ochreous yellowish, ochreous brownish, reddish to fox-reddish; that along mid-dorsal line anteriorly and submedially on tergite 2 especially reddish, but with a rather conspicuous submedial spot of black or dark scales on each side discally and another on sides of 2 and a small submedial black spot on each side discally of 3 and some obscure dark spots on sides of abdomen; snow-white scales on abdomen arranged transversely across hind margins of tergites, more or less broken up discally along mid-dorsal line and submedially on each side, those laterally on last two or three segments denser, longer, broader, wedge-shaped or cuneiform; dense tuft on sides of tergite 2, one on sides of 4 and part of 5 composed of narrowish, flattened, pointed or sometimes blunt, black, scale-like hairs (or scales) and

black bristles and that on sides of tergite 3 of white scale-like hairs (or scales) and bristles; scales on venter white; those on legs usually whitish or greyish whitish, sometimes yellowish, but those on upper apical aspect of femora usually dark. *Wings* vitreous to greyish hyaline, the extreme base, costal cell and anterior basal part of first basal cell subopaquely greyish whitish, yellowish to yellowish brownish, or even brownish and in some forms even the basal cells and basal parts of marginal cell tinged yellowish brownish to a variable extent; three brownish or blackish brown spots usually present, in middle of first basal cell, on middle cross vein region and at base of fourth posterior cell respectively, often also with a less conspicuous or very faint infusion at base of third posterior cell, sometimes even with an obscure spot at base of first basal cell and another very faint one at base of upper cubital branch; basal stump present on both second vein and upper cubital branch; base of second vein usually opposite or nearly opposite middle cross vein; the latter usually much before middle of discoidal cell; axillary lobe much broader than anal cell. *Head* with the interocular space in ♂ a little more than 2 or nearly 3, and in ♀ about 3 to 4, times width of tubercle; antennae not very widely separated, usually less than twice length of joint 1; terminal joint of joint 3 subequal to or a little shorter than slender part in ♂, but in ♀ usually a little shorter than in ♂, sometimes even a third length of slender part. *Legs* with spines on all the femora below, more numerous on hind ones, especially in ♂. *Hypopygium* of ♂ (text-fig. 170) with the beaked apical joints slightly flattened, their apices directed upwards and outwards and with a crest basally; guide of aedeagal structure with a median ventrally directed spine-like process and above it another process, much like that of *robustalis*; basal part of aedeagus globular or spherical. Dorso-apical angles of terminal lamellae not produced hook-like.

In the Commonwealth Institute, British, Transvaal, Rhodesian and South African Museums, Deutsches Entomologisches Institut, and in the Agricultural Dept. of Southern Rhodesia.

Length of body: about 4–14 mm.

Length of wing: about 5–14 mm.

Locality: In all the Provinces of the Union, South-West Africa, Kalahari, Bechuanaland, Northern and Southern Rhodesia and Portuguese East Africa.

Among the large number of specimens before me at least three more or less distinct varietal forms, which show certain more or less constant characters and



TEXT-FIG. 170. Side view of hypopygium and dorsal view of right beaked apical joint of ♂ of typical form of *Argyrotaenia incisuralis* (Macq.).

which differ from the more typical form, may be distinguished. As this widely distributed species is very variable and as many transitional forms occur in any large collection of specimens from various localities, the taxonomic value of varietal forms is, however, only of relative significance, serving only as a means of distinguishing different series of specimens which deviate from what is accepted as the more typical form. As members of the South African Museum staff have frequently observed that representatives of this species frequent or visit the burrows of various kinds of solitary bees which make holes in sandy soil or in the banks of dry river-beds in various parts of the Karoo, there is some justification for the inference that this species probably parasitizes various species of solitary bees (see below under the form *aridicola*).

The chief varietal forms so recognized are as follows:

Argyramoeba incisuralis f. *aridicola* n.

This form differs from the more typical form in having the white scaling on head and body above more conspicuously developed; that on thorax arranged in more or less four conspicuous bands of slightly longer and broader hair-like scales; that across hind margin of scutellum markedly dense; that across hind margin of tergites composed of more conspicuous, relatively short, broadish, more or less cuneiform scales and those posteriorly on each side very broad, flattened and more strap-like; the predominantly white scaling renders this form distinctly whiter in appearance; first and second antennal joints constantly paler reddish; hairs on face in both sexes gleam predominantly sericeous yellowish or pale pinkish, or reddish golden, or such pale elements are at least more numerous.

This form chiefly occurs in the more arid or drier parts of South Africa.

In the South African Museum.

Locality: Namaqualand: Spektakel (Lightfoot, Oct. 1890) (♂-type); Kamieskroon (Mus. Exp., Nov. 1936) (♀-type); Kamieskroon-Springbok (Mus. Exp., Oct. 1939). Bushmanland: Naib between Springbok and Pella (Mus. Exp., Oct. 1939). Nieuveld Karoo: Escarpment near Beaufort West (Mus. Exp., Nov. 1935). Karoo: Murraysburg (Mus. Exp., Nov. 1935); Richmond (Mus. Exp., Nov. 1939); Willowmore (Brauns, 15 Nov. 1919). Koup Karoo: Dikbome in the Laingsburg Div. (Mus. Exp., Oct. 1952); Koup Siding (Mus. Exp., Oct. 1952). Moordenaars Karoo: Lammerfontein (Mus. Exp., Oct. 1952).

This form was found visiting the burrows of the white-haired bees (*Fidelia villosa*) in the Koup Karoo, in the nests of which they probably develop.

Argyramoeba incisuralis f. *glaucescens* n.

This form is characterized by its dull mouse-greyish appearance. From the typical form it differs in having no conspicuous broadish white scales across

hind margins of tergites discally, these white scales distinctly finer, narrower, more slender and hair-like, inconspicuous and absent discally, and on sides where white scaling is present the individual scales are also narrower, more slender, or even hair-like; rest of scaling above also less ochreous yellowish, duller, more dull brownish; hairs on face in both sexes, but especially in ♀, either predominantly pale or they contain more numerous pale ones; first and second antennal joints also more constantly reddish and not dark as in typical form and the femora are entirely dark or black; the apical part of front and middle ones less extensively reddish; hind margins of tergites and sternites more conspicuously reddish; spots in wings usually smaller and less conspicuous, often very small, and the spot at base of third posterior cell is often scarcely indicated.

Locality: Karoo: Willowmore (Brauns, 3 March 1927) (♂-type) and 10 Dec. 1920 (♀-type), in the Transvaal Museum); Richmond (Mus. Exp., Nov. 1939); Murraysburg (Mus. Exp., March 1931); Aberdeen (Mus. Exp., Nov. 1935). Western Karoo: Calvinia (Mackie, 11–16 Nov. 1931). Nieuveld Karoo: Escarpment near Beaufort West (Mus. Exp., Nov. 1935); Oukloof in Beaufort West Dist. (Zinn and Hesse, Jan. 1949); Rietvlei in Beaufort West Dist. (Zinn and Hesse, Jan. 1949); Koup Karoo: Gamkaspooort (Mus. Exp., Oct. 1937); Rooinek Pass, Laingsburg Div. (Zinn and Hesse, Jan. 1949); Touts River (Mus. Exp., Oct. 1937); Buffels River (Mus. Exp., Oct. 1937); Koup Siding (Mus. Exp., Nov. 1939); Merweville (Mus. Exp., Feb. 1941); Merweville Dist. (Zinn, Jan.–Feb. 1947); Laingsburg Dist. (Mus. Exp., Feb. 1938). Southern Cape: Robertson (Brauns, 18 Dec. 1926). Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936). Bechuanaland: Kaotwe (Vernay-Lang Kal. Exp., 8–12 April 1930).

Argyramoeba incisuralis f. fumosa n.

This form is fairly distinctive and differs from most other forms in having the wings distinctly darker, tinged smoky greyish or in ♀ even smoky brownish, with the base and anterior costal part darker, more smoky brownish, especially in ♀, the darker anterior basal part imperceptibly grading into less dark part; spot-like infuscation at base of third posterior cell usually well developed and in addition a more or less constant infuscation or faint infusion also at base of upper cubital branch; squamae distinctly more dirty whitish or even yellowish; bristly hairs on face in both sexes always predominantly or entirely dark or black or at least with very much fewer pale hairs; mesopleural tuft, coxae and trochanters with more numerous black hairs intermixed; last three sternites usually with predominantly black hairs and black hairs even present on sides of venter in some specimens; body, excluding the usual white scales, with much fewer or scarcely any pale scales above, the black or dark ones being very extensive in addition to the usual patches of dark scaling on thorax and abdomen.

This variety seems to occur in the wooded and shrub-grown slopes of mountains and hills.

Types in the South African Museum.

Locality: Western Cape: Olifants River Valley between Citrusdal and Clanwilliam (Mus. Exp., Oct.-Nov. 1931) (types); Clanwilliam (Brauns, Sept. 1928). Namaqualand: Bowesdorp (Mus. Exp., Sept. 1941). Southern Karoo: Matjiesfontein (Lightfoot, Nov. 1910).

It is quite possible that this form is identical with Bezzi's *decipiens* (p. 619, *Trans. Ent. Soc. Lond.*, 1911 and, p. 173, *The Bombyliidae of the Ethiopian Region*, 1924), but as Bezzi's descriptions are very short and unsatisfactory it is impossible to confirm this identity.

Three specimens from Southern Rhodesia in the Rhodesian Museum which have been labelled as *decipiens* by Brunetti and Marshall do not appear to differ from *incisuralis* (Macq.) s. str., and such differences as they show are not of sufficient importance to assign them to even a distinct form.

Species of *Anthrax* described from South Africa which I have not been able to determine

Anthrax biappendiculatus Macquart, *Dipt. Exot., Suppl.* v, 75, 93, tab. iii, fig. 11, 1855.

According to Paramonow this species which Macquart described from 'Oceania' is not a Pacific or Oriental form, but an African one. From the figure of its wing and the description as far as it goes, the species appears to be identical with *Argyramoeba incisuralis* (Macquart). (See under the latter species.)

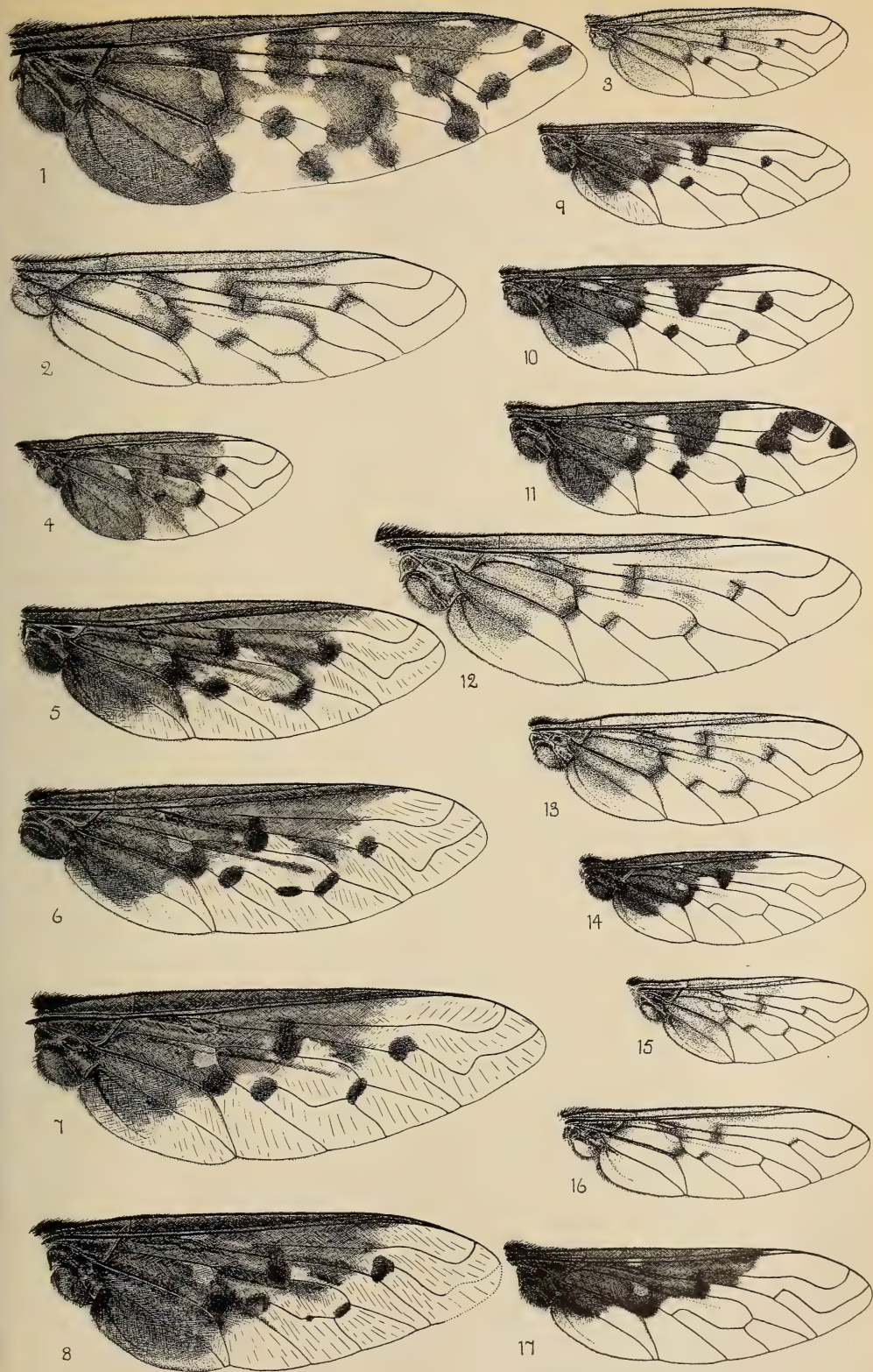
Anthrax maculipennis Macquart, p. 56 and tab. 20, fig. 3, *Dipt. Exot.*, ii, 1840.

Bezzi believed this species to be the same as *diffusus* Wied., but as he himself confused other species with *diffusus* his conclusion cannot be accepted. Macquart's figure of the wing agrees more with that of *phaeopteralis* described in this memoir, but as Macquart's description is very brief and unsatisfactory it is impossible to identify his species.

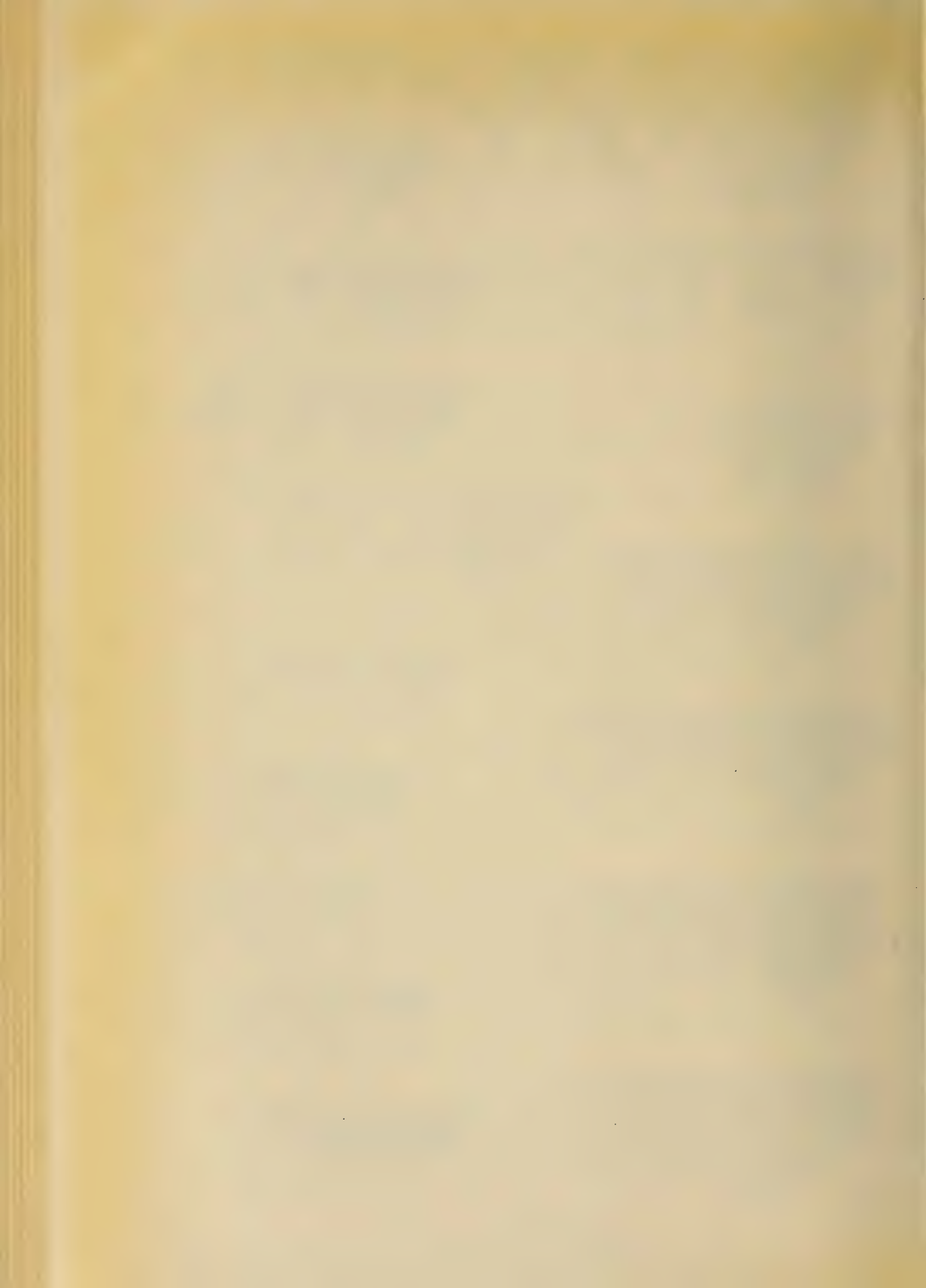
Anthrax punctulata Macquart, p. 56, *Dipt. Exot.*, ii, 1840.

This species which Bezzi catalogued as a synonym of *punctipennis* (Wied.) may or may not refer to that species. From Macquart's description it is impossible to confirm this. Moreover Macquart's figure of the supposed wing (loc. cit., tab. 19, fig. 7) is not that of the species he described.

Anthrax terminus Walker, p. 252, *List. Dipt. Ins. Br. Mus.*, ii, 1849.

Wings of South African species of *Anthrax*

1—*Anthrax plumipes* n. sp. (♂). 2—*Anthrax nubeculosus* n. sp. (♂). 3—*Anthrax cunctator* n. sp. (♀). 4—*Anthrax eurypterus* n. sp. (♀). 5—*Anthrax xerozous* n. sp. (♀). 6—*Anthrax tetraspilus* n. sp. (♀). 7—*Anthrax diffusus* Wied. (♂). 8—*Anthrax rhodesiensis* n. sp. (♀). 9—*Anthrax caffer* n. sp. (♂). 10—*Anthrax triatomus* n. sp. (♂). 11—*Anthrax candidulus* n. sp. (♂). 12—*Anthrax hessii* Wied. (♂). 13—*Anthrax consobrinus* var.



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A REVISION OF THE BOMBYLIIDAE (DIPTERA) OF SOUTHERN AFRICA

PART III

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In this third part of my Revision the various genera and species belonging to the large subfamily *Exoprosopinae* are dealt with. The descriptions of two new genera belonging to the First Division (Part I, vol. xxxiv), as well as some errata and synonymical notes pertaining to the latter Division, and also notes on certain previously unrecognized South African species wrongly described by Macquart from Oceania, are appended at the end of this part. A complete index to all three parts of the Revision is also given at the end.

Subfamily EXOPROSOPINAE

Representatives of this subfamily are chiefly characterized by the relatively widely separated antennae, the conical or club-shaped third antennal joints which may terminate in an apical joint or a two-jointed style, but without any apical circlet of fine hairs; a metapleural tuft or at least some hairs on metapleuron; a fringe of scales or scale-like hairs on hind margins of alula and squamae; a circlet of spines or hooks on ovipositor of ♀♀; the absence of pulvilli in the majority of species; the presence of a basal tooth or process on claws in a very large number of forms; and the presence of three or even more submarginal cells in wings in a very large number of species. Other characters by which many forms may be easily recognized in addition to those mentioned above are the more forward position of the ocellar tubercle, the cone-like projecting facial region, the absence or reduced number of spicules on front tibiae in many forms, and the extensive infuscations, patterns and spots in the wings of many forms.

From representatives of the *Anthracinae*, with which they have some characters in common, members of this family may at once be distinguished by the entire absence of a circlet of fine hairs around apical stylet of third antennal joint, the presence of a tuft of hairs on metapleuron, the presence of scales or scale-like hairs on margins of alulae and squamae, a circlet of spines and not hairs on ovipositor of ♀♀, and the absence of pulvilli in most of the species.

Both the *Anthracinae* and the *Exoprosopinae* differ from the *Lomatiinae* in the presence of a distinct plumula on the ligamentous connection between the squamae and scutellum, the base of second vein which is always very near or opposite middle cross vein and never farther away from it than about length of latter, and the distinctly more widely separated antennae.

Gen. *Synthesia* Bezz.

(Bezzi, p. 130, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 29, *The Bombyliidae of the Ethiopian Region*, 1924.)

This is one of those aberrant genera which cannot be comfortably fitted into the subfamily with which it appears to have most characters in common. If an attempt be made to assign it to the *Exoprosopinae*, with which it has many characters in common, others such as the absence of a bisecting line in the hind margin of the eyes, the posterior position of the ocellar tubercle, the shape of the third antennal joint, the origin of the second vein and the presence of well-developed pulvilli, render its systematic position anomalous and at the same time necessitate a revision and a modification of the accepted criteria which distinguish the *Exoprosopinae* from other subfamilies. It is however evident that notwithstanding affinities with the *Lomatiinae* and *Anthracinae*, this genus has more in common with the *Exoprosopinae* to which Bezzi rightly assigned it. Its taxonomic position among the genera of the latter subfamily is however difficult to determine. For the sake of convenience it is here provisionally placed at the beginning. It is characterized as follows:

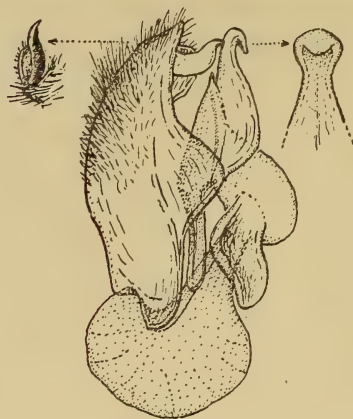
Body oval, somewhat Muscoid in appearance; abdomen oval, attenuated and pointed posteriorly; integument with much yellowish reddish or reddish; head across eyes a little broader than thorax, scarcely narrower or only a very little narrower than across broadest part at level of postalar calli; scutellum transverse, very much broader across base than long, its hind margin semicircularly rounded. *Vestiture* composed of relatively short hair and dense, relatively long, hair-like scaling on body above and venter below; erect hairs dense on head in front, in collar region, notopleural part, pleurae and sides of abdomen, longest in collar and on sides of tergites 1 and 2, short on thorax in front (behind collar), short and sparse on abdomen discally; macrochaetal bristles absent, only shortish prealar, postalar and scutellar bristly elements present; pteropleuron and hypopleuron bare; a moderately developed metapleural tuft present; scaling on head and body above well developed, markedly dense; that on thorax above, scutellum and abdomen above and below very dense, fine, hair-like and decumbent; that on frons and face slightly less fine and even that behind eyes fine and not flattened as in other genera; scaling on sides of thorax above wings, at base of thorax, on sides of scutellum, across hind margin of tergite 1, on lower part of mesopleuron, on sternopleuron and on coxae fine, longish, hair-like and almost indistinguishable from hairs; scales on legs broader, more flattened than those on body. *Wings* rather broadish, long, broader and less pointed apically in ♀♀, without any distinguishing pattern; only yellowish or yellowish fuscous in antero-basal half; basal hook rather stout; basal comb poorly developed; patagium (scales on basal hook) wanting; second vein originating more or less at right angles a little before middle cross vein at a point about or subequal to length of latter, sometimes a little farther away or a little nearer cross vein, rather deeply looped at end, without any

stump at basal bend; upper branch of cubital fork strongly S-curved, without a stump basally; submarginal cells only two in number; first posterior cell broadly open apically; discoidal cell rather short, its apical cross vein straight, oblique and slightly shorter in ♀♀ than in ♂♂; middle cross vein usually a little before middle of discoidal cell; second posterior cell rectangular; basal vein of third posterior cell S-curved, without an appendix basally; anal cell rather broadly open apically; axillary lobe broad, broader than anal cell, broader in ♂♂ than in ♀♀; alula well developed, fringed with narrowish scales like the squamae; knobs of halteres rather large, oval and transverse. *Head* with the occiput rather shorter than length of third antennal joint, bilobate, the lobes not contiguous; eyes separated in both sexes, but narrower in ♂♂ than in ♀♀, hind margin broadly indented, without any distinct bisecting line from indentation; ocellar tubercle situated far back, rather prominent in both sexes, less so in ♀♀; frons transversely, sometimes foveately and centrally, depressed just before middle in ♀♀, less so in ♂♂; face bluntly convex, very prominent, in profile tumidly projecting, narrower on sides of buccal cavity when viewed from in front; lower parts of genae visible, passing upwards on each side of face into deepish and narrow genal furrows; buccal cavity long, well developed; proboscis not projecting beyond buccal cavity, its labellar lobes much shorter than basal part; palps long, slender, almost as long as proboscis, extending up to level of labellar lobes, pilose; antennae widely separated, joint 1 broader apically than basally, longer than 2, the latter transverse, both with hairs, those on inner part of joint 1 longish and tuft-like; joint 2 without hairs on inner aspect; joint 3 conical, straight above, its base bulb-like, passing into more slender part which tends to be rather stoutish and which is a little more than twice length of base, ending apically in a very short joint bearing a short apical stylet. *Legs* with the front ones short; front femora unarmed; middle and hind ones with a few spines on anterior lower part; middle femora also with some fine hairs on posterior part; front tibiae with some spicules only on lower parts and with fine brush-like hairs below; middle and hind tibiae with four rows of spicules of which the outer upper ones on hind ones are farther apart, longer, but not denser than the others; front tarsi slightly modified and more hairy than rest of tarsi in both sexes, their claws much reduced; claws simple, slightly curved apically; pulvilli present, nearly as long as claws. *Hypopygium* of ♂ (text-fig. 171) with the apical angles of the shell-like basal parts slightly produced, bases of latter also produced and lobe-like; beaked apical joints somewhat flattened from side to side, slightly twisted; aedeagal apparatus with the aedeagus itself very short and the ventral aedeagal process prominently projecting, its apical part flattened and broadened spoon-like, ending apically below in a recurved lip-like or ledge-like process which is usually not much evident or is depressed against the surface in dried specimens. *Ovipositor* of ♀ with a circlet of relatively long spines.

The genotype and only known species is *Synthesia fucoides* Bezz.

Synthesia fucoides Bezz.(Bezzi, p. 131, *Ann. S. Afr. Mus.*, xviii, 1921.)

Body with a little more than basal half of frons, occipital part to level of eyes below, thorax above, base or basal half of scutellum, dorsal part of abdomen above to base of either tergites 4, 5 or 6 (excluding broadish hind margins) in form of a triangle becoming narrower posteriorly, and bases or basal parts of



TEXT-FIG. 171. Side view of hypopygium, dorsal view of right beaked apical joint, and ventral view of apical part of aedeagal process of ♂ *Synthesia fucoides* Bezz.

all or some sternites to a variable extent black or very dark blackish brown, the black on abdomen above and below more extensive in ♀; front part of frons, face, head below, entire pleural parts, postalar calli, hinder part of scutellum, broadish hind margins of tergites and the rest of abdomen (not coloured black) yellowish reddish or reddish, this reddish on abdomen in ♂ more extensive; antennal joints 1 and 2 reddish, latter darkened above; joint 3 dark reddish brown or brownish; buccal cavity pallid inside; proboscis dark reddish brown or blackish brown and palps yellowish; legs mainly yellowish, reddish yellow or luteous, only the apical parts of tarsi darkened and the spicules black. *Vestiture* entirely creamy yellowish to yellowish, the erect hairs or hair-like

elements gleaming more sericeous yellowish or golden in certain lights and the denser hair-like scaling duller yellowish; fine hairs on outer part of second antennal joints slightly brownish, otherwise no dark or black hairs or scales on any part of body; scaling on legs paler than on body, very pale creamy or whitish. *Wings* hyaline, shining; base, costal cell and basal half up to middle cross vein, extreme base of first submarginal cell and basal part of marginal cell and including slightly less than basal half of discoidal cell, entire second basal cell, extreme base of fourth posterior cell and to a variable extent anterior basal part of anal cell tinged yellowish to yellowish brownish to a variable extent; cross veins within the infuscated parts sometimes appearing darker; veins yellowish to reddish, those at apex of wings slightly darker; squamae opaquely yellowish; halteres yellowish, their knobs whitish. *Head* with the interocular space at narrowest part in front of ocellar tubercle in ♂ nearly or about $1\frac{1}{2}$ times width of tubercle and nearly or about 3 times width of tubercle in ♀. *Legs* with about 1–3 spines on anterior lower part of middle femora and about 3–8 on hind ones. *Hypopygium* of ♂ (text-fig. 171) as described for genus.

Types in the South African Museum.

Length of body: about 5–10 mm.

Length of wing: about $5-9\frac{1}{2}$ mm.

Locality: Namaqualand: Springbok (types); Springbok-Kamieskroon; Kamieskroon and Klipvlei near Garies. West Cape: Graafwater. Tankwa Karoo: Waterval on the Tankwa River.

Easily recognized by its yellowish red body, yellowish legs, entirely yellowish vestiture and the basally infuscated wings.

Gen. *Villa* Lioy

(Lioy, p. 732, *Atti Istit. Veneto* (ser. 3), ix, 2, 1864; Bezzi, p. 623, *Trans. Ent. Soc. Lond.*, 1911; Bezzi, p. 126, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 181, *The Bombyliidae of the Ethiopian Region*, 1924; Bezzi, p. 225, *Bull. Soc. Roy. Ent. d'Egypte*, viii, 1924; Becker, p. 17, *Ann. Mus. Nat. Hungar.*, xiv, 1916; Painter, p. 799, *Ann. Ent. Soc. Amer.*, xxiii, 1930; Painter, p. 5, *Journ. Kansas Ent. Soc.*, vi, 1933; Engel, p. 570, *Die Fliegen d. Pal. Reg.*, lief. 111, 1937.)

The species now referred to the genus *Villa* were formerly described under the composite genus *Anthrax*, but as the latter genus is now restricted to those species which were formerly placed under *Argyramoeba* s. l. (see under *Anthrax* and *Argyramoeba* in this revision) and which as a group show certain constant characters distinguishing them from the numerous other species also described under *Anthrax*, the erection of new and separate genera became imperative to contain the latter. Among a long list of genera so established, the genera *Villa* Lioy (1864), *Hemipenthes* Lw. (1869), *Thyridanthrax* Ost. Sack. (1886) and *Oestranthrax* Bezz. (1923) were the only Palaearctic and Ethiopian ones to retain generic validity.

Even among the representatives of the first three genera there are transitional forms which cannot be easily allocated to one or other genus. Representatives of *Hemipenthes* are supposed to differ from the forms referred to *Villa* by the presence of an *Anthrax*-like wing-pattern, but at least two known African species of *Villa* have distinct *Anthrax*-like wing-infuscations, but have nevertheless been referred to *Villa*. Forms with extensive wing-infuscations (*Hemipenthes*) are chiefly Palaearctic and North American in their distribution, and hence Bezzi's contention that *Hemipenthes* is not represented in Africa. The generic differences between *Villa* and the latter however appear to be of so little taxonomic importance that Painter (loc. cit., 1930 and 1933), in his study of some American representatives of these two genera, has relegated *Hemipenthes* as a subgenus of *Villa*. Representatives of *Thyridanthrax* and *Oestranthrax* on the other hand however show certain distinct characters which distinguish them respectively and generically from species of *Villa*. The characters of *Villa*, as based on the South African species before me, are as follows:

Body mostly black, but in most species the sides of tergites 1-3 yellowish or reddish to a variable extent; base of venter and hind margins of sternites also reddish or yellowish to a variable extent; postalar calli and sometimes disc or apex of scutellum also reddish; sutural parts of pleurae, especially around

hypopleuron and pteropleuron, usually reddish or reddish brown; legs either predominantly yellowish or reddish or black, or with the femora and tarsi darkened; interior of buccal cavity usually pallid or yellowish. *Vestiture* composed of erect hairs, bristly hairs, fine hair-like scales and flattened scales; hairs on frons and antennae above invariably dark or black; hairs on thorax in front, on sides in front of wings, in mesopleural tuft and on propleurae usually dense, pale, rarely with much dark hair or black intermixed ones; those on sides of abdomen denser than above, densest on sides of tergites 1 and 2; hair on abdomen above usually sparser, mostly in form of bristly ones across hind margins of tergites, with a few or numerous black ones across last tergite and sternite and sometimes also with black ones on other tergites; extreme sides of tergites 5 and 6 with some or a tuft of black or dark hairs and scales in most species, more so in ♀♀; prealar, postalar and scutellar bristles usually present; face, venter, hind margins and sides of tergites and legs usually with flattened scales; finer hair-like scaling or tomentum present on disc of thorax and scutellum and as transverse bands of black and pale ones across tergites; pleurae with even more hair-like scaling; lower half of sternopleuron and entire hypopleuron always bare; scales on sides of abdomen and sometimes across hind margin of last tergite sometimes strongly developed in form of long, broadish, bat-shaped or cuneiform ones, aggregated in tufts as in some species of *Anthrax*. *Wings* markedly uniform in character, vitreous or glassy hyaline in most species, extensively infuscated in anterior part in only two known African forms, only base and costal cell in others sometimes tinged or infused with yellowish, brownish or blackish; basal hook and basal comb well developed and both covered with flattened scales which may be gleaming silvery white in some ♂♂ (that over the recurved hook usually known as the 'patagium'); squamae rounded, fringed with feathery scales; costal cell well developed, sometimes rather strongly so; false vein always distinct; submarginal cells only two in number; second vein originating at or almost at right angles opposite middle cross vein, rarely with an indication of a slight stump at the bend, the vein itself sinuous apically, moderately recurved or bent back, but not to the same extent as in some forms of *Anthrax*; upper branch of cubital fork S-curved, its backward loop deep; first posterior cell either slightly narrowed or broadly open apically; discoidal cell broad, obtusely pointed apically, its lower vein very sinuate or S-curved, the backward bend constantly broad and deep; third posterior cell much longer than broad; anal cell narrowed apically, but always fairly broadly open; axillary lobe broad, well developed and broader than anal cell. *Head* large, subglobular, broader than anterior part of thorax, but narrower than broadest part of latter; occiput fairly broad, the occipital gap narrow, the lobes narrowly separated; eyes large, the hind margin broadly emarginate, though not angularly indented, the bisecting line long, almost reaching middle of eye; upper facets in ♂♂ distinctly coarser than in lower half; eyes in ♂♂ never contiguous above, the interocular space on vertex at narrowest part either as broad as or a little broader than ocellar tubercle; interocular

space in ♀♀ broader than in ♂♂ and usually about or a little more than 3 times width of tubercle; frons gradually broadening apically, without any basal groove, but with a slight central depression a little beyond middle in ♀♀ and a more transverse one in ♂♂; face comparatively broad, broadest at level of antennae, slightly convex discally, not prominently projecting snout-like apically, its base below each antenna with a bare streak; genal part evident as a sunken or foveate depression on each side; buccal cavity deep and broadish; proboscis comparatively short and stoutish, never projecting much beyond apex of buccal cavity, its labellar lobes usually well developed and usually not much shorter than horny basal part; palps fairly long, slender, pointed apically, but slightly broadened before apex, sometimes slightly flattened, covered with longish, fine hairs; antennae always widely separated; joint 2 transverse, broader than long, shorter than joint 1; joint 3 with its base broad, discoidal or bulb-shaped and as broad as or slightly broader than joint 2, its slender part either gradually tapering or filiform, or sometimes slightly flattened, usually much longer than bulbular base, not ending in a distinct or conspicuous apical joint, but in a fine upwardly directed stylet or hair. *Legs* with the middle and hind femora armed with a variable number of black spines on anterior lower part and sometimes also with some spinelets apically above on hind femora; outer or hinder part of front and middle femora also with longish fine hairs; front tibiae sometimes without distinct spicules, more often however with three rows of fine ones, those on outer lower part the longest and those on inner lower part replaced by a brush-like strip of very fine dense hairs, the apical spurs vestigial; middle and hind tibiae each with four rows of well-developed black spicules and long apical spines, the spicules in outer upper row on hind tibiae usually much denser and closer together, appearing comb-like, those in outer lower row fewer and longest, with longish scales sometimes also present on upper and inner parts of hind tibiae, thus giving them a feathery aspect; front tarsi modified and hairy in both sexes; joint 1 of hind tarsi slightly thickened; claws without a basal tooth, the front ones much reduced in both sexes; pulvilli entirely wanting. *Hypopygium* of ♂♂ (text-figs. 172-9) markedly uniform in series of species; dorso-apical parts of clasper-like basal parts always covered with fairly dense hairs; beaked apical joints very uniform in shape and not of much use in the separation of the species, more or less laterally compressed in apical part and directed slightly outwards, ending apically in an upper tooth-like process or lobe and a shorter lower one; aedeagal apparatus consisting of a slightly curved and pointed aedeagus and a prominent and conspicuous, apically directed, ventral, aedeagal process which is usually in form of a broad, flattened, scoop-like process of which the apical part may either end in two separated or contiguous, downwardly directed spines, processes or hooks, or it may be without spines and merely scoop-like, or with a central, keel-like ridge dorsally and apically; middle bulb-like part of aedeagus usually small; lateral struts small; basal strut usually scarcely projecting posteriorly, bat-shaped, ham-shaped or boomerang-shaped. *Ovipositor* of ♀♀ with a series of spines on

each side, increasing in size from above to below and each with its apex bent sub-hook-like.

The genus *Villa* may be easily distinguished from *Anthrax* and *Argyramoeba* as defined in this revision, by the uninfuscated and unspotted wings, absence of pulvilli, modified front tarsi, more reduced front claws, differently shaped third antennal joint which has no terminal joint bearing a crown of hairs, absence of stumps to bases of second vein and upper cubital branch, feathery scales on alula, less developed hair and bristles on body, etc. All these differences incidentally place it in an entirely different subfamily. It is even more difficult to separate the various species of *Villa* than in the case of *Anthrax*, and a satisfactory key to the species is very difficult to draw up. Certain species are so variable in characters, such as the presence or absence of dark hairs on the face and across the tergites, that they have been split up into two or more species by authors who had only a few specimens at their disposal. There is no doubt that much confusion exists in the systematics of this genus and that many species are not valid, but are synonyms of species which show a great amount of geographical and topographical variation. The descriptions of Wiedemann, but more especially Macquart, are so unsatisfactory that an examination of the actual types is imperative if their African species are to be correctly identified. In this revision the various species are provisionally allocated as far as their identity is sufficiently clear from descriptions and comparisons and from identifications by Bezzi and others, but identification under these conditions also does not entirely eliminate the element of uncertainty.

As regards the life histories of species of *Villa*, the pupae and hosts of only two South African species are known, and both these have been reared from Noctuid-moths. According to Bezzi and Engel, certain Palaearctic species, of which the life histories are also known, also parasitize Noctuids, but some are known to develop in certain Coleopterous larvae (Family *Tenebrionidae*).

Key to the South African species of Villa in the collections before me

1. (a) Basal and costal infuscation in wings more extensive, this blackish brown infuscation occupying at least base, entire costal cell and basal half of first basal cell, sometimes also entire first and second basal cells; halteres darker, more brownish, their knobs darker, more brownish; numerous black or dark prealar bristles present; apical part of face in profile distinctly, though slightly, more subconically prominent; labellar lobes of proboscis less developed, relatively shorter, much shorter and narrower than basal part. 2
- (b) Only the base and costal cell darkened or even the latter entirely hyaline like rest of wings; halteres much paler, pallid or pale yellowish, their knobs very pale or even whitish; prealar bristles entirely pale or at most with only one dark bristle and, if with more, wings not extensively infused at base and anterior part; apical part of face in profile rounded, not tending to be subconically prominent and, if appearing more tumid, other characters at least conform; labellar lobes of proboscis distinctly more developed, longer, larger and broader, often scarcely shorter than basal part. 3
2. (a) Wings with an anterior basal and costal blackish brown, *Anthrax*-like pattern, occupying base, costal cell, basal half of marginal cell, entire first and second basal cells and base of anal cell; longish bat-shaped or cuneiform scales on sides of abdomen relatively

shorter; pale scaling on abdomen above with more numerous pale or ochreous yellowish ones across apical part of tergite 2, across 3 and apical parts of 5-7 in addition to two conspicuous bands of white scaling across bases of tergites 2 and 4; interocular space on vertex in ♂ distinctly broader than ocellar tubercle.

♂ ♀ *leucochila* Bezz. (p. 480)

- (b) Wings with only the base, costal cell and basal half of first basal cell blackish brown; longish bat-shaped or cuneiform scales on sides of abdomen relatively longer; pale scaling on abdomen above less extensive and in addition to the two conspicuous bands of white ones across bases of tergites 2 and 4 with fewer pale ones across tergites 2 and 3; interocular space on vertex in ♂ about as broad as or only a little broader than tubercle.

♂ ♀ *karooënsis* n. sp. (p. 482)

3. (a) Sides of abdomen with conspicuous, longish, flattened, cuneiform or bat-shaped, black scales on apical part of tergite 2 and sides of 3, or on 3 alone, and also on sides of 5 and 6, and with white ones on sides of 4 and 7; legs usually reddish or yellowish, with the apical parts or halves of front and middle femora and apical third or fourth of hind ones, or sometimes the upper surfaces of all the femora, the entire hind tibiae and all the tarsi dark or black-scaled, the legs or femora rarely entirely dark. . . . 4

- (b) Sides of abdomen with more numerous hairs, the scales not in the form of conspicuous tufts of long, bat-shaped ones, but much shorter than the hairs or hidden among the hairs on these sites and thus not obvious or evident even if they are also black on sides of tergites 2 and 3 and 5 and 6 and snow-white on sides of 4 and 7; legs either predominantly dark or black or, if yellowish or luteous, apical parts of femora are less extensively darkened or the femora are entirely yellowish. . . . 11

4. (a) White or yellowish scales in bands across base of tergite 2 and across 3, 4 and 7 very much shorter, not transversely arranged and not brilliantly silvery; hair on face more often predominantly pale or whitish and, if entirely dark, scales on abdomen not silvery; slender part of antennal joint 3 relatively less slender, usually less filiform, much shorter, usually less than $3\frac{1}{2}$ times length of broad bulb-shaped base; apical parts of second vein and upper cubital branch usually distinctly more recurved or at least the latter more recurved. . . . 5

- (b) White scales in bands, more or less laterally, across bases of tergites 2, 3, 4 and 7 long, transversely situated and brilliantly silvery; hair on face predominantly dark or black, only intermixed ones pale; slender part of antennal joint 3 markedly long, slender and filiform, quite $3\frac{1}{2}$ to a little more times length of broad, but more discoidal, base; apical parts of second vein and upper cubital branch distinctly and markedly less recurved or looped than in most other species. . . . ♂ *argentina* Bezz. (p. 491)

5. (a) Base of wings more extensively darkened, blackish brown to black, and even alular part dark, the infuscation extending into costal cell to a variable extent and even entire costal cell may be dark; squamae dark or blackish; hairs on face usually predominantly pale or whitish, only a few dark ones present in some ♂♂; hairs on sternite 7 and even 6, in ♀ at least, usually black; pale scales at base of thorax, across hind border of white band across base of tergite 2, across base of 3, across hind border of white band on 4 and across apical parts of 5, 6 and 7 distinctly more yellowish, ochreous or even orange yellowish. . . . ♂ ♀ *vitripennis* (Lw.) (p. 483)

- (b) Base of wings usually less extensively darkened, either much paler, more yellowish and alular part much paler than base, and costal cell entirely hyaline; squamae paler, more yellowish or pallid in at least apical half; hairs on face usually with more numerous dark ones down the middle or entirely dark or black and, if entirely pale, costal cell is hyaline and base of wings less dark; hairs on sternites 6 and 7 predominantly or entirely pale or with fewer dark ones, even in ♀♀; pale scales at base of thorax and across bases of tergites 3-7 usually more whitish and those on 5 and 6 sometimes even mainly dark. . . . 6

6. (a) Base of wings more uniformly dark blackish brown; squamae entirely dark or more extensively dark; prealar bristles all yellowish, pale or pallid; hairs across hind margin of last sternite mostly black, especially in ♀♀. . . . 7

- (b) Base of wings more pale yellowish or pallid in alular part; squamae less extensively darkened, yellowish, pallid or whitish in at least apical part or half; prealar bristles sometimes with at least one stoutish darkish or black one and, if all are pale, squamae not entirely dark; hairs on last sternite either entirely pale or with only a few dark ones, even in ♀♀. 8
7. (a) Hair on propleural and pleural, or at least on pleural, parts white like that in collar, on sides of thorax, in mesopleural tuft and base of abdomen; hairs on face dark, but with some white ones intermixed; fine hairs on abdomen above discally mostly pale to at least tergite 4; pale scaling on abdomen above, other than transverse white bands, more whitish or greyish; space between antennae distinctly less than length of antennal joint 3; hind tibiae tending to be darker, even if denuded. ♂ ♀ *hybrida* n. sp. (p. 490)
- (b) Hair on propleurae and entire pleurae distinctly much darker, deeper yellowish, fulvous, or even more brownish than the straw-coloured ones in mesopleural tuft and base of abdomen; hair on face entirely dark or with only a very few golden ones; fine hairs on abdomen above pale only near base; pale scaling on abdomen above, other than white bands, more ochreous yellowish; space between antennae broader, subequal to length of antennal joint 3; hind tibiae more yellowish even if denuded of dark scaling. ♂ ♀ *fulvipleura* n. sp. (p. 489)
8. (a) Hair on propleural and pleural parts whitish or sericeous white like rest of hair on body above; prealar bristles usually all pallid or yellowish; coxae without any reddish or brownish golden bristles; face usually with predominantly whitish hairs and scales, only a few dark ones down the middle or at apex and, if with much dark hair, pleurae at least white-haired; hairs across hind margin of last sternite, especially in ♀♀, mainly pale; femora without much black or dark scaling above in addition to darkened apical parts. 9
- (b) Hair on propleurae and pleurae distinctly tinted more yellowish, fulvous or even brownish fulvous to a variable extent, thus contrasting with the more whitish hair above or on other parts; prealar bristles usually with at least one very dark or black bristle; coxae with some gleaming reddish golden bristles; face with distinctly more numerous or denser black hairs down the middle and along sides among the slightly more yellowish hairs and scales; hairs across last sternite with some or numerous black ones; femora sometimes with much black or dark scaling above or even tending to be black or dark. ♂ ♀ *loewii* n. sp. (p. 487)
9. (a) Slender part of antennal joint 3 not filiform, but gradually becoming thinner from the more bulb-shaped base; sides of tergites 1 and 2 in ♀♀ at least black or scarcely reddish and hind margins of sternites only narrowly or only obscurely reddish; claws more feebly developed and front ones distinctly more reduced; face usually with much fewer dark hairs and these mainly down middle; antennae with much pale hair below. 10
- (b) Slender part of antennal joint 3 very slender and filiform, originating more rapidly from the more discoidal base and also longer; sides of tergites 1 and 2 in ♀ distinctly more reddish and hind margins of posterior tergites and those of sternites relatively broader reddish; claws comparatively more strongly developed and front ones less or scarcely much reduced; face with much black hair all over; antennae with black hairs below. ♀ *flicornis* n. sp. (p. 488)
10. (a) Base of wings slightly more yellowish or pale yellowish brownish; basal part of squamae brownish or dark brownish; patagium and entire or greater part of basal comb in ♂ silvery-scaled; second vein slightly more recurved apically; scutellum shorter, its basal width a little less or a little more than twice its length; sides of tergites 1 and 2 not reddish; scales across tergites 5 and 6 with more numerous white or pale ones and the corresponding sternites entirely or predominantly white-scaled; scaling at base of thorax mainly pale; middle femora with at least two strong spines below. ♂ ♀ *turneri* n. sp. (p. 485)
- (b) Base of wings subopaquely whitish; squamae entirely subopaquely whitish; patagium and base only of basal comb silvery-scaled in ♂; second vein slightly less recurved

apically; scutellum relatively longer, more pointed, its basal width much less than twice its length; sides of tergites 1 and 2 reddish; scales across tergites 5 and 6 predominantly dark or with fewer pale ones and corresponding sternites also with much dark scaling; scaling at base of thorax also mostly dark; middle femora without any spines or with only very feeble spinelets. ♂ *dissimilis* n. sp. (p. 486)

11. (a) Transverse bands of pale scaling across tergites six in number (excluding pale ones on 7), occupying base of tergite 2, apical margin and base of 2 and 3 respectively, of 3 and 4 respectively and to a certain extent also of 5 and 6 respectively (i.e. they more or less occupy the lines of division between these tergites); these bands relatively narrower and the one across base of 2 not or scarcely reaching middle of tergite; tergite 4 not entirely covered with pale scaling, much dark or black scaling being also present, usually across middle part; sides of tergites 2 and 3 without any dark scales among the dense pale hairs. 12

- (b) Pale scaling either occupying most of the upper surface or the transverse bands of pale ones across tergites only five in number (excluding those on 7), and not disposed across lines dividing the tergites, occupying mostly the bases of 2 and 3, entire or greater part or basal half of 4 and either the bases or apical halves or sometimes also greater part of 5 and 6; band across 4 distinctly occupying greater part or at least basal half of the tergite and dark scaling, if present, confined to hind part or extreme hind margin; pale band across tergite 2 usually broader or often reaching middle of tergite; sides or extreme sides of 2 and 3 often with some distinct dark scales hidden among the pale hairs and, if without these, pale bands at least not arranged across lines of division. 13

12. (a) Sides of tergites 5 and 6 in ♂ on extreme sides without any or with only an obscure and inconspicuous tuft of black hairs usually hidden among the dense whitish ones; apical margin of last tergite in ♂ also without any or with only a few black hairs intermixed medially; ♀ with a slightly more conspicuous black tuft on sides of tergites 5 and 6 and usually with some black hairs medially across hind margin of last tergite and sometimes a few in the middle as well, but without any black ones on sides of 6 or preceding tergite; patagium in ♀ without any or with only a few dark scales; discoidal cell tending to be slightly more acute apically.

♂ ♀ form *albescens* of *sexfasciata* (Wied.) (p. 492)

- (b) Sides of tergites 5 and 6 with more distinct, denser and more conspicuous tufts of black hairs in both sexes; hind margin of last tergite with more numerous and more conspicuous black hairs, also with black ones across almost entire hind margin of tergite 6 and also with some across middle part of hind margin of 5 and in some ♀♀ even with dark or black ones intermixed on 4; patagium in ♀ with more dark or black scales, sometimes even entirely dark-scaled; discoidal cell tending to be more obtuse apically.

♂ ♀ *sexfasciata* (Wied.) (p. 491)

13. (a) Legs darker, either entirely or mainly dark or black or with the greater part or entire femora darkened, brownish or dark brownish to black or, if more yellowish, anterior apical parts of femora, lower and apical parts of tibiae and the tarsi distinctly more extensively darkened to a variable extent; scaling on legs, other than some yellowish or black ones, with whitish or greyish white ones distinctly more extensive. 14

- (b) Legs entirely, predominantly or more extensively luteous, yellowish, reddish or paler and more yellowish brownish or with only extreme apices or apical parts of femora and tibiae less extensively dark or black-scaled; scaling on legs, other than black ones and some white ones, with yellowish or deep ochreous ones distinctly more extensive. 20

14. (a) Face distinctly much broader, at least twice or more than twice length of antennal joint 3; interocular space on vertex in known ♂♂ distinctly broader, wider or much wider than ocellar tubercle, that in known ♀♀ also wider, usually broader than twice width of tubercle and, if only about twice, face is much broader; hairs and scaling on body below more conspicuously or contrastingly snow-white; scaling on legs rather conspicuously white or with more extensive white scaling on certain parts; hairs on sides of abdomen on the whole longer and denser and transverse bands of pale scales above usually more whitish or with more white ones. 15

- (b) Face distinctly much narrower, markedly narrower, distinctly less than twice length of antennal joint 3; interocular space in ♂ narrower, only about or scarcely wider than tubercle, that in ♀ also narrowish and only about twice width of tubercle; hairs and scaling on body below or at least on pleurae more straw-coloured, not much paler than the slightly yellowish ones above and not strikingly snow-white; scaling on legs distinctly more greyish yellowish, creamy yellowish to yellow; hairs on sides of abdomen and also above on the whole shorter and less dense and bands of pale scales above more creamy or pale yellowish. ♀ *gariephina* n. sp. (p. 494)
15. (a) Slender part of antennal joint 3 comparatively thick and stoutish, broadish towards dilated or bulb-shaped base of joint, usually more distinctly compressed and thus appearing broader when viewed from compressed side; joint 3 as a whole thus more conical, more gradually narrowed apically from broad base; apex of face in profile tending to be slightly more subprominent; hairs on abdomen slightly less dense, not appearing furry or woolly; scales across hind margin of last tergite conspicuous and either dark or gleaming silvery whitish; tufts of black or dark scales on sides of tergites 5 and 6 more conspicuous, the scales usually broader and longer; first posterior cell in wings usually relatively broader and less narrowed apically, rarely narrowed. 16
- (b) Slender part of antennal joint 3 more normally slender or even filiform, not tending to be stoutish, merely tapering to a point, not or scarcely compressed towards base, the joint thus more rapidly narrowing from the bulbular base to slender part and appearing less conical; apex of face not tending to be subprominent; hairs on abdomen of ♂♂ at least denser, appearing furry or woolly; scales across hind margin of last tergite white, without any dark ones and not more conspicuous or broader than rest of white scaling on abdomen posteriorly; tufts of black hairs and scales on sides of tergites 5 and 6 usually less conspicuous or shorter, the dark scales, if present, usually narrower; first posterior cell more sub-spindle-shaped, more narrowed apically. 19
16. (a) Conspicuous flattened scales across hind margin of last tergite gleaming black or dark graphite-like, and the hairs across the same margin as well as those on last sternite black; dark scaling on abdomen above finer; second vein in wings slightly less recurved apically; slender part of antennal joint 3 more gradually tapering apically; interocular space in known ♂ only about or a little more than $1\frac{1}{2}$ times width of ocellar tubercle. 17
- (b) Conspicuous flattened scales across hind margin of last tergite gleaming silvery white in certain lights, and hairs across same margin as well as those on last sternite sericeous white; dark scaling on abdomen above slightly broader, less linear; second vein slightly more recurved apically; slender part of antennal joint 3 more rapidly narrowed from about apical third, thus appearing more sharply pointed; interocular space in ♂ quite twice width of tubercle. ♂ *nivearia* n. sp. (p. 498)
17. (a) Front tibiae with distinct, conspicuous or longer spicules; transverse bands of pale scaling on abdomen above more greyish white to yellowish, especially discally; face with more numerous black hairs down the middle; hairs in front of wings and on humeral tubercle more straw-coloured yellowish than white ones in mesopleural tuft and below; interocular space on vertex in ♀ narrower, only, scarcely or a little less than twice width of tubercle; base of wings darker, more opaquely yellowish brownish; second posterior cell distinctly narrower, more subparallel-sided, less than twice as wide apically as basally; upper cubital branch slightly less sinuous and slightly less deeply looped backward. ♂ ♀ *pachystyla* n. sp. (p. 495)
- (b) Front tibiae without any distinct spicules or with minute, fine and indistinguishable ones; transverse bands of pale scaling on abdomen above more snow-white or cretaceous white throughout; face without any or with only a few, or much fewer, dark hairs; hairs on humeral tubercle and in front of wings snow-white like those on pleurae and body below; interocular space on vertex in ♀♀ slightly broader, about or a little more than twice width of tubercle; base of wings more subopaquely whitish; second posterior cell distinctly broader apically, at least or even more than twice width of its base; upper cubital branch slightly more wavy and slightly more deeply looped backward. 18

18. (a) Legs, especially femora, entirely or more extensively dark or dark blackish brown; sides of abdomen not or only obscurely reddish; venter entirely or mainly black; white hairs and scales on body below and on sides of abdomen less dense and those on prosternal and sternal parts and on coxae much shorter and sparser; scaling on legs mainly white; first posterior cell in wings almost subparallel-sided and broadly open; discoidal cell relatively narrowish, its broadest part only about or scarcely wider than broadest part across first posterior cell; middle cross vein much nearer base of discoidal cell; basal comb very poorly developed; interocular space on vertex in ♀ slightly broader, about $2\frac{1}{2}$ times width of ocellar tubercle; hind femora with fewer, only about 2 or 3 spines below; spines of ovipositor in ♀ dark or black; smaller form, about $7\frac{1}{2}$ mm. long, with a wing-length of about 7 mm. . . . ♀ *karasana* n. sp. (p. 497)
- (b) Legs with much more yellowish on femora, and tibiae also much paler, more yellowish; sides of tergites 1 and 2 distinctly and fairly broadly yellowish; base of venter or hind margins of sternites yellowish to a variable extent; white hairs and scales on body below and on sides of abdomen longer and denser and also longer on prosternal and sternal parts and on coxae; scaling on legs with also much yellowish scaling; first posterior cell more sub-spindle-shaped, more narrowed apically; discoidal cell normally broad and at broadest part much broader than first posterior cell; middle cross vein nearer middle of discoidal cell; basal comb distinctly more developed; interocular space in ♀ slightly narrower, only about or only a little more than twice width of tubercle; hind femora with more, about 5-7, spines on outer lower part and some smaller ones on inner lower part; spines of ovipositor yellowish; larger form, about 11-13 mm. long, with a wing-length of about $10-11\frac{1}{2}$ mm. . . . ♀ *aspiculata* n. sp. (p. 497)
19. (a) Wings less pointed, more rounded apically; costal cell slightly narrower, less strongly developed; base and costal cell subopaquely pale yellowish whitish or whitish; hairs on abdomen above and below in ♂ at least entirely snow-white like those on thorax and pleurae, without any black ones or black hair-like scales on sides of tergites 5 and 6 or on sides of 3 or with only a very few inconspicuous dark scales hidden among the white hairs on these sites; a tuft of more numerous black hairs medially between antennae which sometimes extends sparsely down middle of face basally; transverse bands of pale scaling on abdomen entirely white and well defined on all the tergites; red on sides of abdomen slightly less extensive and confined to sides of tergites 1 and 2; femora entirely black or very dark, more extensively white-scaled, yellowish or dark ones being more restricted to outer apical part; slightly smaller form, about $11\frac{1}{2}-13$ mm. long, with a wing-length of about $10\frac{1}{2}-12$ mm. . . . ♂ *chionalis* n. sp. (p. 508)
- (b) Wings distinctly more pointed apically; costal cell slightly broader, more strongly developed; base and costal cell darker, more yellowish brownish to brown; hairs on abdomen above and below and those on pleurae also mainly snow-white in ♂, but as in ♀ those in collar slightly tinted pale sericeous yellowish and with some dark hairs on posterior tergites in both sexes and with distinct and conspicuous tufts of black hairs and hair-like scales on sides of tergites 5 and 6 and to a lesser extent also on sides apically of 3; hairs in middle between antennae without any or with only a few dark ones; transverse bands of pale scaling on abdomen above, though predominantly white, also with some dull greyish yellowish to yellowish ones discally and in ♂ at least with pale bands across tergites 2 and 3 tending to be ill-defined among the dense hairs medially above; red on sides of abdomen slightly more extensive and present on sides of tergites 1-3; femora tending to be more dark reddish brown to blackish brown, with more extensive yellowish scaling along the anterior and upper surfaces; slightly larger form, about $14\frac{1}{2}-15$ mm. long, with a wing-length of about $13\frac{1}{2}-15$ mm. . . . ♂ ♀ *niphobletoides* n. sp. (p. 506)
20. (a) Body, especially the abdomen above, without any or with very few black scales, the fine scaling being entirely or predominantly pale yellowish or ochreous yellowish and transverse bands not very evident; scaling across bases of tergites more yellowish whitish and that across apical halves or hinder parts of tergites more orange yellowish or orange; legs more extensively yellowish, the femora entirely so, without even the extreme apices darkened, only apical halves of tarsi dark; first posterior cell tending to be less narrowed apically. . . . ♀ *flavalis* n. sp. (p. 499)

- (b) Body above, especially abdomen, with much fine black scaling, arranged in transverse bands across hinder halves of tergites 2 and 3 (or 4) and basal parts of 5 and 6, which distinctly delimit the bands of pale scaling; legs less extensively or not entirely yellowish throughout, the femora and sometimes tibiae darkened apically by dark or black scaling to a variable extent; first posterior cell distinctly more narrowed apically and, if not, abdomen at least with conspicuous bands of pale and dark scaling. . . . 21
21. (a) Bands of pale or white scaling across tergites comparatively narrower, that across 4 not occupying the greater part of or entire tergite, a fairly broad transverse apical band of black ones being present, the pale ones across bases of tergites 2 and 3 not or scarcely reaching middle of tergites; base of wings paler, more opaquely yellowish and costal cell clearer or less tinged. . . . 22
- (b) Bands of pale or whitish scaling across tergites comparatively broader, that across 4 occupying the greater part of or entire tergite even if only laterally and without any or with only a very narrow band of black scales apically; pale bands across bases of tergites 2 and 3 broader, reaching middle of tergites; base of wings more brownish, reddish brown or yellowish brown and costal cell more opaque or opaquely tinged yellowish or reddish brown. . . . 23
22. (a) Hind margin of last tergite with some black scales, replaced laterally by white ones; hair generally paler, more sericeous white or straw-coloured and more whitish below; that on abdomen, especially sides, longer and denser; bands of pale scaling more whitish and with more black scales across bases of tergites 5 and 6; tufts of black hairs and scales on sides of 5 and 6 longer, more conspicuous; first posterior cell distinctly more narrowed apically; apical parts of femora and tibiae more distinctly or more broadly black-scaled; middle and hind femora with more numerous spines below; spicules in outer upper row on hind tibiae more strongly developed and denser than those in inner row. . . . ♂ ♀ form of *lasia* (Wied.) (p. 501)
- (b) Hind margin of last tergite with entirely white or whitish scales; hair generally more sericeous yellowish, only the scaling on pleural and ventral parts whitish; hair on sides of abdomen shorter and less dense; bands of pale scaling more yellowish, without any distinct black scales across bases of tergites 5 and 6; tufts of black hairs and scales on extreme sides of 5 and 6 inconspicuous, scarcely evident; first posterior cell distinctly less narrowed, more broadly open apically; femora with scarcely any dark scaling apically and only extreme apices of tibiae darkened; middle and hind femora with much fewer spines (2 or 3) below; spicules in outer upper row on hind tibiae comparatively feebly developed, scarcely denser or more developed than those in inner upper row. . . . ♀ *flavipes* (Lw.) (p. 500)
23. (a) Smaller, less bulky forms, not or rarely reaching a body-length of 13 mm. and with a wing-length of much less than 13 mm.; fine hairs on body above, especially abdomen, distinctly less dense, both the pale and dark bands of scaling showing up more distinctly and the abdomen not appearing markedly woolly or furry; legs distinctly more slender, less stout; wings slightly less pointed apically; costal cell more normal; second posterior cell distinctly longer, vein between it and third posterior cell not much or scarcely shorter, usually longer, than apical width of cell. . . . 24
- (b) Larger and more bulky forms, reaching a body-length of about 13–16½ mm. and with wings about 13–15 mm. long; fine hairs on body above, especially abdomen, markedly dense especially in ♂♂, both the pale and dark bands of scaling usually more hidden by the fine hairs which give the abdomen a markedly pubescent or furry appearance, especially in ♂♂; legs stouter; wings slightly more pointed apically; costal cell rather broadish and strongly developed; second posterior cell relatively shorter, the vein between it and third posterior cell shorter or much shorter than apical width of cell. . . . 27
24. (a) Face without distinct and conspicuous black hairs down the middle, the darker ones, if present, only yellowish or golden; frons with more pale scales intermixed among the black hairs; transverse bands of pale scaling across tergites broader and tergite 4 almost without any dark scales; hairs on abdomen on the whole slightly shorter; base and costal cell in wings paler, more yellowish; smaller forms, usually less than 11 mm. long. . . . 25

- (b) Face with distinct and sometimes conspicuous black hairs down middle; frons with pale scales only anteriorly; transverse bands of pale scaling on abdomen relatively narrower and tergite 4 with more black ones across apical part; hairs on abdomen tending to be longer; base and costal cell darker, more opaquely brownish; larger form, about 11–13 mm. long, with a wing-length of about 10–12½ mm.
♂ ♀ form of *lasia* (Wied.) (p. 503)
25. (a) Hairs on abdomen distinctly, though slightly, longer and those on sides also distinctly longer, those on extreme sides of tergites 2 and 3 not conspicuously fulvous; dark tufts on sides of tergites 5 and 6 longer, more conspicuous, not hidden among the pale hairs; pale bands on abdomen less conspicuously delimited and usually more whitish; sides of tergites 1–3 and venter less conspicuously or extensively yellowish or reddish and only more or less basal half of latter yellowish; femora tending to have the apices or extreme apices more extensively or more distinctly darkened; antennal joint 3 less conical, its slender part more rapidly narrowed from base; second posterior cell in wings on the whole shorter and broader; veins darker, more brownish. 26
- (b) Hairs on abdomen distinctly and markedly short, those on sides conspicuously short and those on extreme sides of tergites 2 and 3 distinctly or more conspicuously fulvous or brownish fulvous; dark tufts on sides of 5 and 6 inconspicuous and hidden among pale hairs; pale bands across abdomen more conspicuously evident and ring-like, composed of more yellowish scales; sides of tergites 1–3 and especially venter more extensively yellowish; femora tending to be more extensively yellowish, their extreme apices not or scarcely darkened; antennal joint 3 more conical, its slender part more gradually tapering apically from bulb-like base; second posterior cell distinctly longer and narrower; veins yellowish. ♂ ♀ *apiformis* n. sp. (p. 503)
26. (a) Apical parts of femora and tibiae, especially on anterior aspect, more extensively and more broadly black-scaled or darkened; hairs on abdomen above, even in ♀, with fewer dark hairs across hind margins of tergites and then only on last few. ♂ ♀ form of *lasia* (Wied.) (p. 503)
- (b) Only extreme apices of femora and tibiae darkened; hairs on abdomen, especially in ♀, with more numerous dark ones, present on tergites 2–7. ♂ ♀ form of *lasia* (Wied.) (p. 503)
27. (a) Hairs on body above and to a lesser extent below and scaling on body above predominantly deep to ochreous yellowish, the hair on thorax anteriorly, in upper part of mesopleural tuft and on sides apically of tergite 2 and to a lesser extent on posterior tergites even deeper or more orange yellowish; prealar, postalar, scutellar and sometimes also coxal bristles reddish golden; bristly hairs on face gleaming golden among more creamy yellowish scales; postalar calli, sides of abdomen and basal halves of sternites in basal half of venter more extensively reddish; legs paler yellowish, more luteous, with dense ochreous yellow scaling; wings slightly less pointed apically; veins reddish or reddish yellow. 28
- (b) Hairs on body above and below and scaling on body above in ♂ mainly snow-white, the hairs on thorax anteriorly, if slightly tinted as in ♀ and sometimes in ♂ also, only faintly or feebly pale yellowish or straw-coloured and scaling on body above in ♀ paler yellowish; thoracic and scutellar bristles and coxal bristles as well as bristly hairs on venter gleaming snow-whitish or sericeous white; bristly hairs on face gleaming more sericeous whitish among snow-whitish scales; sides of abdomen less extensively reddish, but postalar calli and venter mainly black or much darker; legs more brownish or reddish brown, with white and buff yellowish scaling; wings slightly more pointed apically; veins darker, brownish or blackish brown.
paler-legged forms of ♂ ♀ *niphobleteoides* n. sp. (p. 506)
28. (a) Interocular space in ♂ relatively broader at narrowest part, considerably more than length of joint 2 of front tarsi; space between antennae much broader, nearly 3 times length of antennal joints 1 and 2 combined; pale hairs and bristles on abdomen above and below sericeous yellowish to reddish golden; bands of pale scaling on abdomen above yellowish to ochreous yellowish; disc of scutellum usually ferruginous reddish; two basal sternites of venter and bases of other sternites, and last sternite in ♀, paler, yellowish reddish. ♂ ♀ *anthophoroides* n. sp. (p. 504)

- (b) Interocular space in ♂, at narrowest part, narrower, scarcely wider than small ocellar tubercle, less broad than length of joint 2 of front tarsi; space between antennae much narrower, distinctly much less than 3 times combined length of antennal joints 1 and 2; pale hairs and bristles on abdomen above and below sericeous white; bands of pale scaling on abdomen in ♂ at least more whitish; scutellum entirely black; base of venter more obscure brownish and bases of other sternites not or scarcely reddish, the venter thus darker. ♂ *kaokoënsis* n. sp. (p. 505)

Villa leucochila Bezz.

(n.n. for *Villa leucostoma* (Wied.))

(Wiedemann, p. 301, *Aussereurop. Zweifl. Ins.*, i, 1828 (as *Anthrax*);
Loew, p. 218, and tab. ii, fig. 19, *Dipt. Faun. Südaf.*, i, 1860;
Bezzi, p. 129, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 188, *The Bombyliidae of the Ethiopian Region*, 1924.)

An easily recognizable South African species which on account of its distinctive *Anthrax*-like infuscation in the wings cannot be confused with any other South African species. It is characterized as follows:

Body black; postalar calli, sometimes also hind margin of scutellum, sides apically of tergite 1, sides of 2 and 3 to a variable extent, sutural parts of pleurae to a variable extent and hind margins of sternites reddish brownish or yellowish brownish; legs yellowish or pale yellowish brown, the apical halves of front and middle femora, especially above, apical third or fourth of hind femora, apices of tibiae and sometimes entire hind tibiae and greater part of tarsi dark or covered with dark or black scales. *Vestiture* predominantly sericeous whitish; hair across front part of thorax above to a variable extent, in humeral tuft and sometimes those in hinder part of metapleural tuft more yellowish or fulvous; some prealar and postalar bristles, some coxal bristles and some hairs on venter sometimes more reddish golden; hairs on frons, on antennae above, some down middle of face, some prealar, postalar and scutellar bristles, very fine hairs on disc of thorax above, most of the sparse ones on abdomen above, bristly ones across hind margins of tergites and some intermixed on venter black; scales on face, behind eyes and hair-like scales on sides of thorax above wing-bases and on pleurae white; scales on middle of frons sometimes more ochreous yellowish; fine scaling on disc of thorax arranged in longitudinal streaks of black and yellowish or ochreous ones, those basally denser and white, those on scutellum mostly black, but ochreous yellowish on sides and across hind margin; scaling on abdomen above composed of black and pale ones, the pale ones in form of a transverse band of white scales across base of tergite 2, another white band mostly on sides or across base of 4, white ones discally on last tergite, more ochreous to orange yellowish scales across hinder part of tergite 2, across base and apical part of 3 and across apical parts of 5 and 6; black scales on abdomen more or less intermixed with yellowish ones or across middle of tergites 2 and 3 and across bases of 5 and 6 and also discally on hinder half of 1; scales on sides

of tergites 2-7 long, flattened, bat-shaped and black on apical parts of tergites 2 and 3 and on sides of 5 and 6, yellowish between the first two black tufts and white on sides of 4 and 7; scaling on venter white, ochreous, and black, the latter more or less arranged across base of sternite 3 and as a series of central patches at bases of 4-7, and with the ochreous ones across hind margin of sternite 3 and arranged more or less on sides of venter and around the black patches; scaling on legs whitish or pale yellowish whitish on parts not covered with dark ones. *Wings* with an *Anthrax*-like pattern, almost identical with that of *Anthrax trisinuatus* (cf. pl. i, fig. 17); base, costal cell, basal cells and basal half or a little more of marginal cell and sometimes extreme base of discoidal cell blackish brown, the infuscation darker and spot-like on cross veins and less intense in middle of basal cells; base of upper cubital branch sometimes with a faint spot-like infusion; patagium in ♂ predominantly sericeous whitish or orange yellowish, feebly developed in ♀, and scales on basal comb orange yellowish or dark in both sexes; squamae dark brownish, white-fringed; halteres and their knobs brownish. *Head* with the interocular space at narrowest part on vertex in ♂ not quite $1\frac{1}{2}$ times width of tubercle, about $2\frac{1}{4}$ - $2\frac{1}{2}$ times width of tubercle in ♀; face in profile distinctly, though slightly, subconically prominent; antennal joint 3 with the slender part nearly or quite 3 times length of broad discoidal base, at first gradually tapering, but more than apical half slender. *Legs* with about 2-5 spines on anterior lower part of middle femora and about 4-9 on hind ones below. *Hypopygium* of ♂ (text-fig. 172) with the dorso-apical part of aedeagal process raised keel-like along midline and without any apical spines or hooks below.

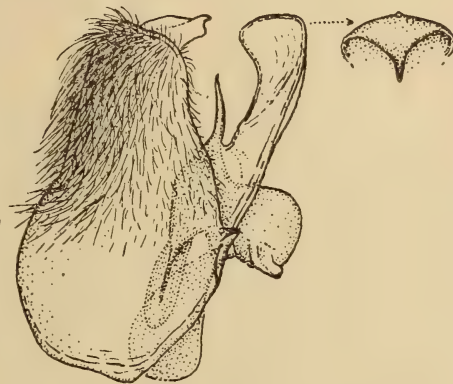
In the British, Durban and South African Museums and in the Commonwealth Institute.

Length of body: about $5\frac{1}{2}$ -11 mm.

Length of wing: about 6-10 $\frac{1}{2}$ mm.

Locality: South-western Cape, Namaqualand, Bushmanland, Eastern Cape, Basutoland and Free State.

Specimens from the Eastern Cape and the Free State are much smaller than those from Namaqualand and the Cape, and those from the Eastern Cape also appear to have no distinct yellowish scales down middle of face and also no reddish golden bristles in front of wings and on coxae.



TEXT-FIG. 172. Side view and apical view of ventral aedeagal process of hypopygium of ♂ *Villa leucochila* Bezz.

Villa karooënsis n. sp.

Body black, with the usually pale parts in this genus reddish to a variable extent; legs yellowish or reddish yellow, the trochanters, apical third of hind femora, apical halves or parts of front and middle femora on their anterior surfaces and the anterior or outer parts of tibiae and usually the entire hind tibiae black-scaled or dark; tarsi usually dark. *Vestiture* with the hairs relatively dense, predominantly snow-white; those on humeral angle sometimes slightly tinted yellowish or fulvous; those on frons, some intermixed ones down middle of face, some at apex of face, those on antennae above, numerous prealar bristles, some postalar ones, scutellar bristles, sparse hairs and bristly ones on disc of abdomen and across hind margins of tergites 2-7, bristly ones on last sternite and some on coxae black; fine, erect hairs on disc of thorax also black; scales on front half of frons, especially in ♀, and on face rather dense, snow-white, those behind eyes gleaming silvery; that on middle part of frons anteriorly in ♂ sometimes yellowish; hair-like scaling on each side above wings and on pleurae snow-white; fine scaling on disc of thorax mostly dark, gleaming graphite-like, but those in three longitudinal bands more brownish and those at base longer, more whitish or greyish; those on disc of scutellum fine and graphite-like except across hind margin where they are yellowish or ochreous; pale scaling on abdomen above arranged in a conspicuous white band across base of tergite 2 and another across base of 4, especially on sides, and across apical parts of 5-7, and as yellowish or ochreous ones across hinder part of tergite 2, base of 3 (especially sides), apical part of 4 and bases of 5-7, but with much black scaling also on these sites and across bases of 5-7; long, bat-shaped scales present on sides of abdomen, those on apical part on sides of tergite 2, on 3, extreme apical part of 4 and on sides of 5 black; those on sides of 3 (above black ones), sides of 4, in an upper apical tuft on sides of 6 and on sides of 7 snow-white; scales on venter mostly white, but those across bases of sternites 3, 5 and 6 dark or ochreous; scales on legs whitish or pale yellowish white on parts not covered with dark ones. *Wings* shining, vitreous hyaline; base including alular part, basal half of first basal cell and greater part of or entire costal cell blackish brown; squamae brown or blackish brown, white-fringed; halteres yellowish brown, their knobs pale yellowish brownish to dark brownish; patagium silvery in ♂, dark or with much dark scaling in ♀, and scaling on basal comb mostly dark or blackish brown in both sexes; veins brownish, dark brownish to blackish brown; first posterior cell rather broadly open apically; middle cross vein before middle of discoidal cell. *Head* with the interocular space on vertex about as wide as or a little wider than ocellar tubercle in ♂, about 3 times or a little less the width of tubercle in ♀; antennal joint 3 with the broad base bulb-shaped, about half as long as slender part which at first gradually tapers apically, a little more than its apical half being styloform; face in profile distinctly, though slightly, subconically prominent apically as in *leucochila*; proboscis with the horny basal part distinctly longer

than labellar lobes which are both narrower and shorter than in most species. *Legs* with 3-5 spines on anterior lower part of middle femora and about 5-7 on hind ones below, of which basal ones are sometimes small. *Hypopygium* of ♂ (text-fig. 173) with the central dorsal part of aedeagal process raised keel-like, much like that of *leucochila*.

From 9 ♂♂ and 7 ♀♀ (types and paratypes in the South African Museum and a paratype in the British Museum).

Length of body: about 6-10 mm.

Length of wing: about $6\frac{1}{2}$ - $9\frac{1}{2}$ mm.

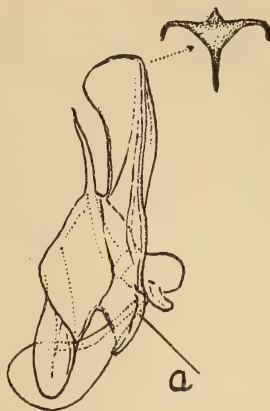
Locality: Koup Karoo: Klaarstroom-Prince Albert (Mus. Exp., Oct. 1952). Karoo: Middelburg (Mus. Exp., Oct. 1935); Murraysburg Dist. (Mus. Exp., Nov. 1935); Richmond Dist. (Mus. Exp., Nov. 1939); Venterstad (Mus. Exp., Oct. 1935). Nieuveld Karoo: On Escarpment, Beaufort West Dist. (Mus. Exp., Nov. 1935) (types). Western Cape: Leipoldtville-Elands Bay (Mus. Exp., Nov. 1948). Namaqualand: Springbok (Lightfoot, Nov. 1890); Kamieskroon (Mus. Exp., Sept. 1930); O'okiep (Lightfoot, Sept. 1890). Eastern Karoo: Somerset East (Turner, Oct. 1930).

This species, which seems to occur chiefly in the Karoo and semi-arid parts of South Africa, resembles *leucochila* very closely. From the latter it may however be distinguished by the less or uninfuscated first and second basal cells in the wings, longer scales on sides of abdomen, etc. Superficially it also resembles *vitripennis* (Lw.) in having the same pattern of scaling and a similarly infuscated base and costal cell in the wings. It may however at once be distinguished by its slightly more prominent face, shorter and narrower labellar lobes of proboscis, more brownish halteres, more numerous black prealar bristles, denser white hair on pleurae, and different type of aedeagal process in ♂.

Villa vitripennis (Lw.)

(Loew, p. 217 and tab. ii, fig. 18, *Dipt. Faun. Südaf.*, i, 1860 (as *Anthrax*); Bezzi, p. 127, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 184, *The Bombyliidae of the Ethiopian Region*, 1924.)

Loew has given a very good description of this species and also a typical representation of its wing-pattern. Within its range it seems to be slightly variable in the intensity of the dark scaling on the femora, the colour of the hair-like scaling on each side above wings, the presence of some black prealar bristles and some dark hairs down middle of face. It is characterized as follows:



TEXT-FIG. 173. Side view of the aedeagal apparatus and apical view of its ventral process of ♂ *Villa karooensis* n. sp. (a = part on each side by which it is attached to the two basal joints.)

Body black, but sometimes with some obscure reddish on sides of tergites 1 and 2, especially in some ♂♂; rest of the usual reddish parts in this genus sometimes tending to be only obscurely so; legs yellowish or luteous, but apices or apical halves of front and middle femora and apical third of hind ones extensively dark-scaled; hind tibiae usually dark and outer surfaces of the others also darkened; tarsi usually dark. *Vestiture* with the hairs like those of preceding species; hair in collar, on humerus and sometimes on propleurae slightly tinted fulvous; hair and scales on face mostly whitish or slightly yellowish, sometimes with some scattered black hairs down middle or in basal half of middle; a few black prealar bristles sometimes present, but usually they gleam reddish golden or yellowish; hair on venter mostly whitish, those posteriorly black like the bristly hairs across tergites in posterior half of abdomen; hair-like scaling on each side of thorax above wing-bases yellowish, brownish golden to black; that on pleurae white; fine scaling on disc of thorax and scutellum mostly black, that at base of former and across hind margin of latter more ochreous; abdomen above with much black scaling, but that arranged as bands across bases of tergites 2, 4 and 7 white and that across hind margins of these white bands and across base of 3 and apical parts of 5 and 6 yellowish, ochreous yellowish or orange yellowish, especially in ♀; long scales on sides of abdomen cuneiform, black on sides of apical half of tergite 2, on sides of 3, 5 and 6, and white on sides of 4 and 7; scales on venter mostly white, but tinted yellowish or ochreous along middle, more dark across bases of sternites 3, 5 and 6; scaling on legs whitish, yellowish white to yellowish on parts not occupied by black ones. *Wings* as figured by Loew and also as described for *karooënsis*, but costal cell less infused apically and lower part or basal half of first basal cell not or scarcely infused; squamae with the apical part tending to be less dark; patagium and basal half of basal comb silvery in both sexes. *Head* with the interocular space on vertex in ♂ distinctly a little broader than ocellar tubercle, only a little more than 2 to nearly or about 3 times width of tubercle in ♀, distinctly narrower than in *karooënsis*; slender part of antennal joint 3 about 2 to nearly 3 times length of bulb-like base, gradually tapering to its slender apical half. *Legs* with about 2 or 3 spines on middle femora below and about 2-4 on hind ones below. *Hypopygium* of ♂ like that of the next species *turneri* (cf. text-fig. 175), but the basal strut is longer and more bat-shaped.

In the Albany, Transvaal and South African Museums.

Length of body: about $6\frac{1}{2}$ -13 mm.

Length of wing: about $6\frac{1}{2}$ -12 $\frac{1}{2}$ mm.

Locality: Cape Province south of the Orange River.

This species appears to be confined to the Cape Province and there are no representatives of it from the other provinces or from subtropical Africa in the collections before me. Species closely resembling it and described below occur outside the Cape, in the north and in the eastern subtropical parts. It is quite probable that representatives of such forms have been confused with *vitripennis* s. str. in literature. Specimens from the forested areas of the southern and east-

ern Cape differ from the typical form in having more dark scaling on the femora above, more numerous dark hairs intermixed down middle of face, black hair-like scales on each side above wing-bases and fulvous or fulvous brownish hairs on pleural parts. Some other specimens have a few black prealar bristles.



TEXT-FIG. 174. Left: Ventral view of apical part of pupal skin of *Villa vitripennis* (Lw.). Right: Ventral and side views of its caudal extremity and terminal spines.

Biology. From a moth-pupa collected by Mr. R. Smithers a large ♀-specimen of this species was hatched in the South African Museum in 1941. Unfortunately the fly emerged on the ventral side of the moth-pupa and in the act damaged most of the pupal structures useful in the identification of the moth. There is however no doubt that the pupal case is that of some species of Noctuid. Sketches of the cephalic and caudal parts of the pupal skin of *Villa vitripennis* are given in text-fig. 174. These cephalic processes agree in arrangement with those of certain Palaearctic species of *Villa* described and figured by Engel (cf. p. 571, text-fig. 228, *Die Fliegen d. Pal. Reg.*, lief. 111, 1937). The two somewhat triquetrous apical processes are contiguous and in *vitripennis* they are short; the two more widely separated and smaller second pair are relatively blunt and not sharply pointed. The rest of the structures on this pupal skin do not differ much from those which characterize Bombyliid pupae in general.

Length of pupal skin: about 15 mm.

Maximum width: about $4\frac{1}{2}$ mm.

Locality: From a moth-pupa collected at Ceres, C.P. (Smithers, 20 Jan. 1941).

Villa turneri n. sp.

Some specimens in the collections, and of which one ♀ is damaged, closely resemble *vitripennis* and can be very easily confused with it. From the latter they however differ in the following respects:

Wings with the costal cell entirely hyaline from its basal cross vein to apex, not infused in basal part or half; base distinctly less dark, more pale yellowish; alular part subopaquely whitish, not brownish; squamae distinctly more pallid, only the extreme base dark; veins paler, more yellowish; patagium and greater part of basal comb more extensively pale-scaled or silvery in both sexes. *Vestiture* with the scaling on disc of thorax with more greyish or greyish yellowish ones and fewer black ones; pale scaling on abdomen above predominantly white, those in transverse bands across base of tergite 3 and across almost entire surfaces of 5, 6 and 7 also white or whitish like those across bases of 2 and 4, not yellowish or ochreous in ♀; those across hind border of white bands on tergites 2 and 4 black, not ochreous or yellowish; black tufts on sides of 5 and 6 not entirely black, but with a tuft or some long white scales also on corner of 6; scaling on venter more whitish, even across bases of sternites 3, 5 and 6; bristly hairs on abdomen above mostly pale even up to tergite 5 and on sides of 5 and 6 (in ♀ of *vitripennis* they are mostly dark from tergite 2); those on posterior part of venter pale or, even in ♀, with much fewer dark hairs. *Head* with the interocular space in ♀ relatively narrower, only about twice width of tubercle; space

between antennae also less and not quite subequal to length of antennal joint 3. *Legs* with the apices or apical parts of femora less extensively darkened and with even the tibiae less dark. *Hypopygium* of ♂ (text-fig. 175) does not differ from that of *vitripennis*, but the basal strut is shorter, more ham-shaped. This species may prove to be slightly variable for one ♂-paratype has numerous black hairs on face whereas the typical ♂ has only a few scattered ones down middle of face. This ♂ also has a dark prealar bristle among the pale ones.

From 3 ♂♂ and 2 ♀♀ (types in the British Museum).

Length of body: about 8–10 mm.

Length of wing: about 8–10 mm.

Locality: South-West Africa: Aus (Turner, Dec. 1929 (holotype); Jan. 1930 (allotype)).



TEXT-FIG. 175. Side view of the aedeagal apparatus and apical view of its ventral process of ♂ *Villa turneri* n. sp. (a = part which is attached to the two basal joints on each side.)

Villa dissimilis n. sp.

A solitary ♂-specimen in the collections may almost be considered as a variety of *turneri*, but as it differs in certain important characters from the latter it is referred to a distinct species. From *turneri* it differs in having the base of wings very much paler, subopaquely whitish, and the squamae entirely subopaquely

whitish; in having the patagium and only the base of basal comb silvery-scaled; the second vein slightly less recurved apically; scutellum relatively longer, more pointed, its basal width much less than twice its length; sides of tergite 1 and 2 distinctly and more extensively reddish; scales across tergites 5 and 6 predominantly dark or with fewer pale ones, and the corresponding sternites also with much dark scaling; and in having only feeble spinelets, not longish spines, on middle femora below. The face also has a small tuft of dark hairs apically which is absent in the ♂ of *turneri*, and the apical parts of femora are also more extensively darkened or dark-scaled.

From a ♂ in the Commonwealth Institute.

Length of body: about $9\frac{1}{2}$ mm.

Length of wing: about $8\frac{1}{2}$ mm.

Locality: Southern Rhodesia: Bulawayo (Rhod. Mus., 8 Oct. 1922).

Villa loewii n. sp.

(Syn. = *vitripennis* Bezzi, in part, nec Loew, p. 128, *Ann. S. Afr. Mus.*, xviii, 1921.)

Another species which superficially resembles *vitripennis*, but is nearer to *turneri*. From the former it differs in the following respects:

Wings with the costal cell entirely hyaline and base of wings distinctly less dark, more yellowish, the alular part subopaquely whitish; greater part of squamae pallid or yellowish white. *Vestiture* with the hair on face in ♂ with numerous black ones, especially down middle and even in ♀ many intermixed dark hairs are present even along sides; hair in propleural tuft, lower part of mesopleural tuft and on rest of pleurae darker, tinted more yellowish, fulvous or even brownish, especially in some ♂♂, thus contrasting with the whiter hair in mesopleural tuft and sides of abdomen; fine hairs on abdomen above predominantly pale to at least tergite 5 in ♂ and 4 in ♀, and without any or with fewer dark hairs on venter posteriorly; transverse bands of white scaling across bases of tergites 2 and 4 not bordered by ochreous yellowish ones and the pale scaling across base of 3 and apices of 5, 6 and 7 sparser, more greyish or whitish; abdomen above with distinctly more black scales; tuft of long black scales on sides of tergites 2 and 3 relatively less extensive. *Head* with the interocular space on vertex relatively narrower in relation to ocellar tubercle, only a little more than twice width of tubercle in ♀ and only a little wider than tubercle in ♂. *Legs* tending to be more extensively darkened on femora above, especially the front and middle ones which are usually entirely black above. *Hypopygium* of ♂ with the aedeagal process like that of *turneri*.

From *turneri* this species differs in having more numerous dark hairs on face; dark hairs on antennae below; pale hairs and scales on face more yellowish; darker and more fulvous hair on pleural parts; a black prealar bristle; some golden or reddish golden bristles on coxae; less extensive white scaling on

tergites 5 and 6, and on sides of these tergites there are more black scales in the tufts; and in having femora which are more extensively darkened above or of which the apical parts are more extensively darkened.

From 8 ♂♂ and 8 ♀♀ (holotype in the South African Museum, allotype in the Transvaal Museum and paratypes in the former and also in the National Museum of Southern Rhodesia and the Agricultural Department of Southern Rhodesia).

Length of body: about 6–10½ mm.

Length of wing: about 7–10½ mm.

Locality: Transvaal: Barberton (Edwards, Dec. 1911) (holotype); Irene (Swierstra, Oct. 1908) (allotype); Johannesburg (Zumpt). Southern Rhodesia: Chirinda Forest (Rhod. Mus., Oct. 1926); Vumba Mts. (Drysdale, 12 Nov. 1935); Vumba (Barnes, 22 Nov. 1947); Umtali Dist. (Barnes, 3 Nov. 1946). South-West Africa: Great Karas Mts. (Mus. Exp., Nov. 1936); Grootfontein (Lightfoot, Dec. 1918). Basutoland: Mamathes (Guillarmod, 11 Nov. 1951, 15 Jan. 1951 and 17 Nov. 1949).

Easily recognized by the fulvous-tinted hair on pleurae, black hair on face, black prealar bristle, and femora which are usually darkened above. This species replaces *vitripennis* in the northern parts of the Union and in Rhodesia. It appears to be slightly variable. Two ♂♂ from Basutoland appear to represent a form in which the black hairs on face are denser and the fulvous hairs on pleurae are replaced by darker brownish fulvous or very dark purplish brownish ones in lower part of mesopleural tuft and in propleural tuft. The legs in this form are also distinctly darker.

The holotype and ♂-paratype from Grootfontein were labelled as *vitripennis* by Bezzi. The ♀ from Chirinda Forest was labelled as *paniscoides* Bezz. by Bryant. According to Bezzi's description (p. 624, *Trans. Ent. Soc. Lond.*, 1911) and a specimen of *paniscoides* from the Congo in the South African Museum, the latter differs in having entirely black legs; even more deeply fulvous hairs on the pleurae; more or deeper ochreous scales across bases of tergites 3–5 and on 6; more black hair on face and on disc of thorax; and the apex of second vein less bent. On the other hand the specimen with dark hair on the pleurae to which Loew refers in a footnote (p. 218, *Dipt. Faun. Südaf.*, i, 1860) to his description of *vitripennis* may prove to be the same as this species or it may be referable to another new species *fulvipleura* described further on.

Villa filicornis n. sp.

A somewhat denuded ♀-specimen in the South African Museum from the Koup Karoo appears to be very near to *loewii*, but differs from it in the following respects:

Body also mainly black, but sides of tergites 1 and 2 distinctly more reddish; hind margins of tergites, especially last four, and those of sternites more distinctly and more broadly reddish; femora less extensively darkened or black-scaled on outer apical parts. *Vestiture* with more dark hairs intermixed on face,

occurring also on sides and not only along middle part; hairs on propleurae, lower part of mesopleuron and front coxae white like those above and not tinted fulvous yellowish or brownish; bristly hairs across hind margin of last sternite reddish or reddish yellow, not black as in ♀ of *loewii*; prealar bristles pale, not with one or two dark ones; hairs on coxae without any or with fewer reddish ones and without black ones. *Antennae* with slender part of joint 3 relatively longer, more slender and filiform, quite 3 times length of bulbular base (distinctly less than 3 times in *loewii*); base itself slightly more discoidal. *Legs* with the fine hairs on front and middle femora distinctly shorter and less developed than in *loewii*; front tarsi less modified, less hairy and their claws only slightly reduced (much reduced and much smaller in *loewii*); rest of claws on the whole slightly longer.

From a ♀ in the South African Museum.

Length of body: about $10\frac{1}{2}$ mm.

Length of wing: about 10 mm.

Locality: Koup Karoo: Koup Siding (Mus. Exp., Nov. 1939).

Villa fulvipleura n. sp.

A couple of specimens in the collections may almost be considered as merely a variety of *loewii*. They agree in having the face predominantly dark or black-haired, in having the lower part of mesopleural tuft, the propleural tuft and hairs on pleurae fulvous brownish, contrasting markedly with the straw-coloured mesopleural tuft and whitish hair on sides of abdomen, but with these hairs even darker than in *loewii*.

From the latter they however differ in the following respects: *Vestiture* with the hair on face almost entirely dark or black; prealar bristles without a black one; hair-like scales on each side of thorax above wings dark; hairs on abdomen above discally mainly dark; hairs on venter posteriorly with more black ones; those on extreme sides of abdomen below with more fulvous ones; scaling across base of tergite 3 and apical parts of 5–7 with more ochreous ones (though sparse); bands of white scaling across bases of tergites 2 and 4 comparatively narrower; tuft of long, white scales on sides of 4 less extensive and with a few black ones also intermixed. *Wings* with the base, including alular part, distinctly darker brownish, but costal cell also hyaline; squamae darker, entirely dark brownish, the fringe more fulvous. *Antennae* with the slender part of joint 3 relatively more slender and longer. *Legs* also with much dark or black scaling on femora above; tibiae almost entirely dark-scaled.

From a ♂ and a ♀ in the South African Museum.

Length of body: about 6–11 mm.

Length of wing: about $6-11\frac{1}{2}$ mm.

Locality: Natal: Weenen (Thomasset, Dec. 1923) (holotype). Southern Rhodesia: Matopo Hills, Bulawayo (Stevenson, 15 April 1923) (allotype).

The holotype was labelled as *paniscoides* Bezz. by Brunetti. In the latter the legs are however entirely black, the face has much denser black hairs and the front tibiae have less strongly developed spicules.

Villa hybrida n. sp.

This is still another species which is very near *vitripennis*, but also resembles *turneri* and *loewii*. From ♀♀ of certain forms of *vitripennis* it may be distinguished by the entirely hyaline costal cell; more yellowish squamae which are only dark along base; numerous black hairs among the whitish ones and scales on face; entirely pale prealar bristles; entirely whitish hair on pleurae, even in propleural tuft; rather narrowish white basal bands across tergites 2 and 4 which are not bordered by ochreous yellowish scales; more whitish or greyish scales across base of tergite 3 and apical parts of 5-7; less white scaling at base of basal comb; more extensively darkened apical halves of femora, especially on front and middle ones, these being entirely dark above; the dark tibiae; the relatively narrower interocular space in ♀ which is only about or scarcely more than twice width of ocellar tubercle; the narrower space between antennae which is distinctly less than, and not equal or subequal to, length of antennal joint 3.

From ♀ of *turneri* the ♀ of this species may at once be distinguished by the very numerous dark hairs on face; dark hairs on antennae below; darker base of wings; less extensive white scaling at base of basal comb; darker basal halves of squamae; dark or blackish hair-like scales on each side of thorax above wing-bases; more black hairs on last sternite; and less extensively yellowish legs.

From *loewii* it differs in the absence of a dark prealar bristle; presence of whitish hair on pleurae; darker base of wings; darker squamae; and narrower space between antennae. From *filicornis* it differs in having darker wing-bases; darker squamae; no reddish on sides of tergites 1 and 2; relatively narrower space between antennae; dark bristles on last sternite; and less extensively yellowish femora and tibiae.

From 4 ♀♀ in the South African Museum.

Length of body: about $7\frac{1}{2}$ -8 mm.

Length of wing: about $7-7\frac{1}{2}$ mm.

Locality: Southern Bechuanaland: Vryburg (Mus. Exp., Oct. 1939) (type). Orange Free State: Modder River in the Brandfort Dist. (Mus. Exp., Nov. 1939).

A much denuded ♂-specimen from '26 miles north of Postmasburg in Griqualand West (Mus. Exp., Oct. 1939)' is also provisionally referred to this species. In this specimen the propleural tuft and posterior part of mesopleural tuft are tinted fulvous as in *loewii* and *fulvipleura*, but rest of pleurae is apparently white-haired; extreme sides of abdomen below without the fulvous-tinted hair of *fulvipleura*; tergite 4 without intermixed black scales among white ones on sides; veins in wings darker; posterior part of squamae paler, more yellowish;

space between antennae relatively narrower, much less than length of antennal joint 3 and thus in agreement with the ♀. *Hypopygium* resembles that of *turneri* and *loewii*.

Villa argentina Bezz.

(Bezzi, p. 128, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 182, *The Bombyliidae of the Ethiopian Region*, 1924.)

The unique ♂-specimen on which Bezzi based his description of this species is still the only recorded specimen of this peculiar species. It cannot be confused with any other known South African species and is chiefly characterized by the brilliantly shining, silvery, elongated scales on the abdomen above and which are more or less transversely situated in bands across the bases more laterally on tergites 2-4 and across tergite 7, but absent along middle; those on tergite 2 poorly developed and those on 7 dense and conspicuous; pale scales on hinder parts of tergites 4-6 much smaller, more greyish yellowish, not arranged transversely; tufts of long, blackish brown, bat-shaped scales are present on sides of tergites 3, 5 and 6 as in other species of this section. The transversely arranged silvery scales on the abdomen are reminiscent of certain species of *Anthrax*.

Other distinguishing characters are the predominantly black-haired face; the whitish hair on sides of thorax and on entire pleural parts; the very slender and filiform part of antennal joint 3 which is quite $3\frac{1}{2}$ -4 times length of broad discoidal base; the yellowish brownish base of wings and more subopaquely whitish alular part; the distinctly less recurved apical part of second vein and shallower loop of upper cubital branch; the bronzy brownish scales on basal comb (only the patagium being silvery); the yellowish legs of which only apices of femora and hind tibiae are dark; and the reddish sides of tergites 1 and 2 and base on sides of 3.

Type in the South African Museum.

Length of body: about 8 mm.

Length of wing: about 8 mm.

Locality: Western Cape: Hex River (Dec. 1884).

Villa sexfasciata (Wied.)

(Wiedemann, *Dipt. Exot.* 142, 35, 1821, and p. 296, *Aussereurop. Zweifl. Ins.*, i, 1828 (as *Anthrax*); Bezzi, p. 127, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 183, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Syn. = *albescens* (Lw.), p. 215, *Dipt. Faun. Südaf.*, i, 1860 (as *Anthrax*); Bezzi, p. 127, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 183, *The Bombyliidae of the Ethiopian Region*, 1924).

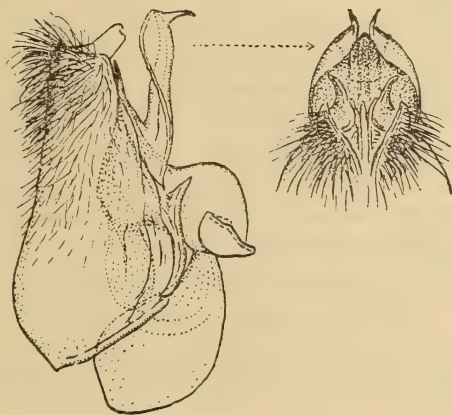
(Syn. = *flavescens* (Lw.), p. 216, *Dipt. Faun. Südaf.*, i, 1860; Bezzi, p. 127, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 183, *The Bombyliidae of the Ethiopian Region*, 1924.)

From the very long series of *albescens* and *sexfasciata* before me it is evident that the former is only a variety or form of the typical *sexfasciata* which Wiedemann described in 1821, and which appears to be very variable in the development of black bristly hairs on the abdomen posteriorly and in the presence or absence of a conspicuous tuft of black hairs on sides of tergites 4 and 5 (visible on sides of 5 and 6). Transitional forms, both ♂♂ and ♀♀, are present in which the black hairs posteriorly on abdomen vary from only a very few intermixed ones, mostly across middle of hind margin of tergite 7 and none on preceding tergites and thus approximating the entirely pale-haired form *albescens*, to forms with numerous black hairs across almost entire hind margins of tergites 7 and 6 and even 5, and thus grading into the more typical form *sexfasciata* in the ♀ of which black hairs are even present on tergites 4 and 5 as well. In the same way there are specimens with scarcely visible black tufts on sides of tergites 5 and 6 contrasting with individuals having conspicuous black tufts on these segments. Even the hair on face varies from being entirely pale or whitish in some forms to forms with a variable number of black hairs intermixed down the middle of the face. Moreover the hypopygium of the ♂ shows no distinct specific differences to separate the two forms.

The chief distinguishing characters of *sexfasciata* and its varietal forms are as follows:

Body mostly black, even the parts usually more or less reddish in most species of *Villa* sometimes entirely black; legs with the femora usually very dark or black, their apical parts or apices more yellowish or brownish to a variable extent, more visible when denuded; tibiae usually paler, more yellowish, yellowish brownish to luteous, the apical parts of hind ones and anterior surfaces or lower apical parts, or even the lower surfaces of the others, dark to a variable extent; tarsi usually dark, their bases sometimes yellowish. *Vestiture* with the erect hairs on body predominantly or entirely whitish, straw-coloured whitish to slightly cream-coloured; both the hairs and scales down middle of face sometimes more yellowish; those in propleural tuft and on coxae sometimes tinted very slightly more yellowish than on sides in front of wings; hairs on frons, antennae above and in some forms with a variable number down middle of face black; hairs on abdomen above and below either entirely pale, whitish or straw-coloured or with only a very few black ones across middle of hind margin of tergite 7 and sometimes on 6 also (*albescens*), or with a variable number of black hairs on these tergites and on 5 as well (transitional forms), or with numerous black ones across entire hind margins of tergites 6 and 7 and also on 5 or even 4 (*sexfasciata*); tufts of black hairs on sides of tergites 5 and 6 either almost absent or entirely absent (*albescens*) or very conspicuous (♀ of *sexfasciata*); hairs on venter entirely pale or whitish or with black ones on last sternite; scaling mostly greyish, greyish yellowish to yellowish on disc of thorax, more or less concentrated in three pale bands, separated by sparser pale and dark scales; that across hind margin of scutellum dense and yellowish whitish; fine scaling on abdomen above composed of six transverse bands of whitish, straw-

coloured or cream-coloured scales separated by black scales, the pale bands arranged transversely across base of tergite 2, across the line of division between 2 and 3, and 3 and 4, and across apical parts of 4 to 6, and with the entire tergite 7 pale-scaled; scales across hind margin of last tergite whitish in *albescens*, but sometimes with some dark ones in ♀ of typical *sexfasciata*; scaling on venter mostly white; that on legs dense, yellowish whitish or cream-coloured. *Wings* vitreous hyaline; base opaquely whitish, pale yellowish to slightly pale yellowish brown; costal cell usually not infused, but sometimes slightly subopaquely yellowish; squamae very pale yellowish; patagium and basal comb silvery-scaled in ♂, the former entirely brown or with numerous brown scales and the basal comb more yellowish-scaled in ♀; veins usually yellowish to brownish; apex of discoidal cell tending to be more pointed in *albescens*-form. *Head* with the interocular space on vertex in ♂ usually a little wider than ocellar tubercle, quite 3 to $3\frac{1}{2}$ times width of tubercle in ♀; space between antennae subequal to length of third antennal joint; the latter with the slender part at first gradually narrowing from the broad bulb-like base, then slender in more than apical half. *Legs* with fairly numerous spines on anterior lower aspect of middle and hind femora and sometimes also with some or a few on posterior lower aspect as well. *Hypopygium* of ♂ (text-fig. 176) with the ventral aedeagal process ending apically below in two spines or hooks as shown in figure.



TEXT-FIG. 176. Side view, and dorso-apical view of the apical joints and apical part of aedeagal process, of hypopygium of ♂ *Villa sexfasciata* (Wied.).

In the Albany, British, Rhodesian, South African and Transvaal Museums, in the Commonwealth Institute, and in the Deutsches Entomologisches Institut.

Length of body: about $7-14\frac{1}{2}$ mm.

Length of wing: about $7-13$ mm.

Locality: Cape Province, Natal, Orange Free State, Transvaal, South-West Africa, Southern Rhodesia and Portuguese East Africa.

This species is easily recognized by its six pale bands across the abdomen and its black legs. It is one of the commonest species in Southern Africa of which the *albescens*-form appears to occur more commonly in the South-western and Western Cape and the Karoo, whereas the more typical *sexfasciata*-form occurs in the less dry, more grass-steppe regions of Eastern and North-eastern Cape,

Natal and the northern provinces. This geographical distribution is, however, not strictly demarcated for specimens of both forms as well as transitional forms sometimes occur as overlaps in both these zones. Without examining specimens it is impossible to state whether all the records of *sexfasciata* in East, Central and West Africa, as given by Bezzi in his monograph (1924), are strictly referable to this species. One ♂-specimen in the South African Museum from Otjivavongongo in South-West Africa was wrongly labelled as *flavipes* (Lw.) by Bezzi.

Biology: Specimens of *sexfasciata* s. str. have been reared from the caterpillars and pupae of the Noctuid-moth or 'army worm' *Laphygma exempta* by the Agricultural Department at Pretoria and also by that of Southern Rhodesia. The caterpillars of this moth sometimes appear in large swarms in the veld and do much damage to plants on which stock feed. This species of *Villa* may thus be considered as a parasite of some economic importance. The empty pupal skin of *sexfasciata* resembles that of other known species of *Villa*. From the cephalic part of *vitripennis* (cf. text-fig. 174) that of *sexfasciata* differs in having the pair of apical spines flattened, not triquetrous and distinctly much longer, their apical cutting or carinate edges more rounded; the second pair of separated dentate processes and the contiguous third pair have their cutting edges also longer and more sharply pointed; caudal spines in profile also very similar, but the apical spine relatively longer and the short, more ventrally situated, spine slightly farther removed, more discontinuous with second spine, the indentation between them tending to be deeper.

Length of pupal skin in normal curved condition: about 11–12 mm.

Maximum width: about 3 mm.

Locality: Transvaal: Springbok Flats (Haines, Feb. 1929) (Ac. P. 4277).
Natal: Durban (10 Feb. 1919) (Ac. P. 3087, Ac. N. 477).

Villa gariepina n. sp.

Superficially this species resembles *sexfasciata*, but may be distinguished by its relatively smaller size and also in the following respects:

Frontal and facial part distinctly and relatively much narrower; space between antennae very much narrower than, and not subequal to, length of third antennal joint; the latter with its slender part relatively much shorter in relation to the broad bulb-like base than in the preceding species, being only a little longer than bulb, the joint thus appearing more conical; interocular space on vertex in ♀ relatively narrower, only about twice width of ocellar tubercle; yellowish whitish or cream-coloured scaling on abdomen above arranged in 5 (not 6) transverse bands, the first across base of tergite 2, second across base of 3, third across entire tergite 4, and fourth and fifth across apical parts of 5 and 6; black tufts on sides of tergites 5 and 6 as well as whitish hair on rest of sides relatively shorter; black hairs on last sternite absent or much fewer than in typical *sexfasciata*. *Wings* similar, but patagium and basal comb with much dark scaling in both sexes. *Legs* more

extensively dark, even the tibiae predominantly dark or black and apical parts of femora not or scarcely reddish; scaling on legs also more whitish. *Hypopygium* of ♂ (text-fig. 177) with the aedeagus slightly more sinuous and apical spines on aedeagal process below fused at their bases, only their apices being divergent.

From 5 ♂♂ and 2 ♀♀ in the South African Museum.

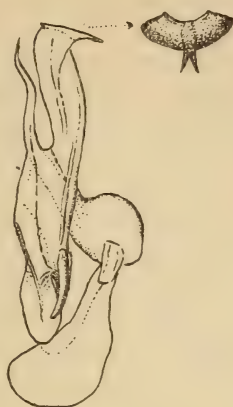
Length of body: about $5\frac{1}{2}$ – $8\frac{1}{2}$ mm.

Length of wing: about $5\frac{1}{2}$ – $8\frac{1}{2}$ mm.

Locality: Namaqualand: Godous (Goodhouse) on the Orange River or Gariep River (Mus. Exp., Nov. 1936).

Villa pachystyla n. sp.

Body black, but with the usual parts reddish to a variable extent; apex of scutellum also tending to be reddish; legs dark castaneous brown, blackish brown to black, the anterior surfaces of femora appearing more black as a result of black scaling, the tibiae only a little or scarcely less dark than femora. *Vestiture* with the erect hair mostly straw-coloured whitish; that on frons, antennae above, down middle of face and above apical rim of buccal cavity black; some in genal region sometimes slightly yellowish; prealar and postalar bristles pallid, but scutellar bristles mostly dark or black; bristly hairs on abdomen above mostly black from tergite 4 to apex; those on venter gleaming sericeous whitish, but black on last sternite; bristly hairs on coxae mostly whitish or pale, but with some dark intermixed ones; scaling on face rather dense, white like that on frons anteriorly; flattened hair-like scaling on pleurae gleaming snow-white; fine scaling on disc of thorax and scutellum gleaming greyish graphite-like in certain lights, black in others, but at base of thorax and on hind border of scutellum more yellowish to ochreous yellowish; scaling on abdomen above composed of whitish, cream-coloured to slightly yellowish ones and black ones, the pale ones arranged transversely as bands across apical margin of tergite 1 plus base of 2, across bases of 3 and 4 and across almost entire surfaces of 6 and 7, with only sparse pale scaling on 5 and the pale band across 4 broad on sides; tufts of long, flattened and bat-shaped, black scales present on sides of 5 and 6, resembling the long cuneiform scales present in *vitripennis*; conspicuous, long, bat-shaped, black scales also across hind margin of tergite 7 where they are replaced by white ones on sides; scaling on venter mostly white, but some dark ones across bases of sternites 3, 5, 6 and 7; scaling on legs gleaming silvery whitish on outer or posterior surfaces of femora and to a certain extent also on tibiae, that on anterior surfaces black or bronzy brownish. *Wings* vitreous hyaline; base yellowish or pale yellowish brownish;



TEXT-FIG. 177. Side view of aedeagal apparatus and apical view of its ventral process of ♂ *Villa gariepina* n. sp.

costal cell hyaline; veins brownish to dark brownish; squamae opaquely whitish to yellowish whitish; patagium and basal comb dark-scaled in both sexes; second vein not much recurved apically; first posterior cell broadly open apically. *Head* with the interocular space on vertex in ♂ markedly broad, a little more than $1\frac{1}{2}$ times width of ocellar tubercle, appearing only a little narrower than in ♀ where the space is about, or a little more than, twice width of tubercle; space between antennae much narrower than length of third antennal joint; the latter very characteristic, its slender part very much stouter than in any of the preceding species, somewhat flattened or compressed from side to side, gradually tapering from the broad bulb-like base, its terminal hair-like style minute; face in profile distinctly, though slightly, subconically prominent apically as in *leucochila* and *karooënsis*. *Legs* with 2 stoutish spines on outer lower aspect of middle femora and about 3 or 4 on anterior lower aspect

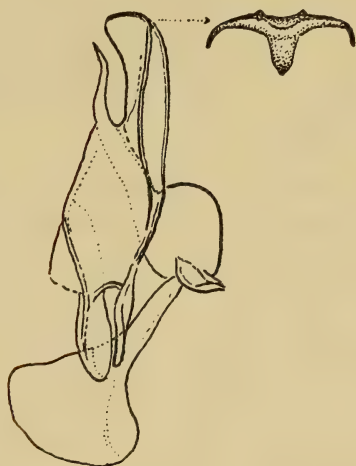
of hind ones. *Hypopygium* of ♂ (text-fig. 178) resembling that of the *turneri*-group, the central, dorsal, apical part of aedeagal process raised keel-like, but the process relatively shorter; aedeagus itself also shorter and stouter; basal strut differently shaped.

From 1 ♂ and 6 ♀♀ (types and paratypes in the South African Museum and a paratype in the Commonwealth Institute).

Length of body: about 7–12 mm.

Length of wing: about 7–12 mm.

Locality: South-West Africa: Otjituo (Tucker, Jan. 1920) (♀-type); Kamanjab (Mus. Exp., Jan. 1925) (♂-type); Outjo (Mus. Exp., Jan. 1925); Nuragas (Lightfoot, Jan. 1919); Kaross (Mus. Exp., Feb. 1925). Southern Rhodesia: Saw Mills (Rhod. Mus., Dec. 1921).



TEXT-FIG. 178. Side view of aedeagal apparatus and apical view of ventral aedeagal process of hypopygium of ♂ *Villa pachystyla* n. sp.

The ♂-specimen from Kamanjab is much denuded, but as it has the same characteristic third antennal joints, slightly subconical face, and conspicuous black scales across hind margin of last tergite as the ♀, it is referred to this species.

This species is easily recognized by the rather stout styliiform part of the third antennal joints, the slightly subconically prominent face, the dark legs, and the black scales across hind margin of last tergite. The conspicuous white scaling on legs also characterizes this species. Specifically this species appears to be very near, if not merely a variety of, *validicornis* which Bezzi described from Nyasaland, but according to the description (p. 184, *The Bombyliidae of the Ethiopian Region*, 1924) of the latter the interocular space in ♂ is much narrower, only a little broader than tubercle, the face in profile is not prominent, the

thorax is clothed with pale yellowish hair and the black tufts on sides of tergites 5 and 6 are inconspicuous. Together with the two species described below *pachystyla* may be relegated to a distinct section which is characterized by a slightly subconically prominent face, a rather stout styliform part of the third antennal joints, relatively broad interocular space in ♂ and conspicuous snow-white scaling on legs.

Villa karasana n. sp.

A unique ♀-specimen in the collections before me obviously belongs to the same section as *pachystyla* and also has the face subconically prominent, the styliform part of third antennal joints rather stoutish and slightly compressed, and with dark, bat-shaped scales across hind margin of last tergite. It differs, however, in having only a few black hairs down middle of face; a slightly broader interocular space which is about $2\frac{1}{2}$ to nearly 3 times width of ocellar tubercle; no red or reddish on sides of tergite 2 and no reddish postalar calli; slightly broader, flattened, snow-white scales on pleurae, venter, coxae and legs, and more cretaceous whitish scaling on abdomen above; bases of wings paler, more subopaquely whitish; basal hook shorter and smaller; second posterior cell distinctly much broader apically, even more than twice as wide apically as basally (less than twice as wide apically as basally in *pachystyla*); apical cross vein of discoidal cell thus much shorter and discoidal cell itself more obtuse apically; and above all by the absence of distinct spicules on front tibiae.

From a ♀ in the South African Museum.

Length of body: about $7\frac{1}{2}$ mm.

Length of wing: about 7 mm.

Locality: South-West Africa: Great Karas Mts. in Great Namaqualand (Mus. Exp., Nov. 1936).

Villa aspiculata n. sp.

Represented in the collections by ♀♀ only, this species is characterized as follows:

Body mainly black; buccal cavity yellowish; postalar calli, a spot of variable extent on sides of tergites 1 and 2, the base of venter or hind margins of sternites to a variable extent yellowish red or yellowish; pleural parts also reddish brownish to a variable extent; femora, especially lower and posterior surfaces, yellowish to a variable extent, the anterior or upper and antero-apical parts dark; tibiae, especially upper parts, also luteous or yellowish, the rest darkened like the tarsi. *Vestiture* with the hairs and scales predominantly snow-white; hairs on frons, antennae above, across tergites 4 to 7 and especially on sides of 5 and 6 and across hind margins of last tergite (in middle) and sternite black; hair in collar, bristly hairs on sides of thorax just above wing-bases, the postalar bristles and scutellar bristles tinted slightly yellowish or straw-coloured; scaling on frons greyish yellowish to dull yellowish; that on face dense and mainly white or sometimes very slightly straw-coloured yellowish down the middle; fine

scaling on thorax above, especially basally and on hind border of scutellum, dull greyish or greyish yellowish as opposed to the black ones in streaks on thorax and discally on scutellum; scaling on abdomen above (where not denuded in the specimens) composed of black and white ones, the latter arranged as broadish bands across bases (especially sides) of tergites 2 and 3, entire 4, apical parts of 5 and 6 and on sides and basally of 7; those on sides of 5, 6, and especially 7, long; longish scales intermixed with dark hairs in tufts on sides of tergites 5 and 6 and longish scales across middle part of hind margins of 7 dark brownish or blackish brown; rather dense scaling on body below and on coxae snow-white; scaling on legs white basally above on femora and also on upper, hinder and lower surfaces of hind ones, that on rest of surfaces yellowish or dark, especially on antero-apical parts; that on tibiae yellowish above and dark below; spines of ovipositor reddish golden. *Wings* clear glassy hyaline; base and costal cell subopaquely whitish; front border vein and basal comb dark, the scaling on latter and in patagium composed of whitish and brownish ones; false and first veins and also lower vein of second basal cell yellowish; rest of veins more brownish or yellowish brown; first posterior cell sub-spindle-shaped, narrowed apically; alular margin dark; squamae yellowish whitish; knobs of halteres whitish. *Head* with the interocular space on vertex about or only a little more than twice width of ocellar tubercle; antennal joint 3, viewed from broadest aspect, almost conical, the broad bulb-like base gradually narrowed to slender apex, the slender part somewhat compressed dorso-ventrally; proboscis stoutish, its labellar lobes well developed and only a little shorter than basal part and with fairly dense hair-like spinules, the basal part with rather longish sparse hairs. *Legs* with about 5 or 6 spines on lower anterior part and 4 or 5 on lower inner part of middle femora; hind femora with about 5-7 spines anteriorly below and 4-7 smaller ones on inner side below; front tibiae without any visible or distinct spicules; front tarsi slightly thickened and hairy.

From 3 ♀♀ in the South African Museum.

Length of body: about 11-13 mm.

Length of wing: about 10-11½ mm.

Locality: Koup Karoo: Rooinek Pass in the Laingsburg Div. (Mus. Exp., Jan. 1949).

Easily distinguished from all other South African species, except *karasana*, by the smooth front tibiae and from most other species by its snow-white hairs and scales on body below and by the tuft of black scales on last segment.

Villa nivearia n. sp.

Another unique specimen, a ♂, may almost be taken as the ♂ of *karasana*, but certain differences in the scales and wing-venation appear to be of sufficient importance to place it provisionally in a separate species. From *karasana* it differs in having some reddish on sides of tergites 1 and 2; no black hairs on last sternite; gleaming silvery white scales instead of black or dark ones across hind

margin of last tergite; second vein in wings more recurved apically; discoidal cell much broader, its broadest part distinctly broader than broadest part of first posterior cell, its apical cross vein also much longer; apical part of stoutish styliform part of third antennal joint more rapidly tapering to a point; and its not entirely smooth front tibiae. In other respects it agrees with this *pachystyla*-section in having the face distinctly, though slightly, subconically prominent apically. The interocular space on vertex is broad, quite twice width of ocellar tubercle.

From a ♂ in the British Museum.

Length of body: about $7\frac{1}{2}$ mm.

Length of wing: about $7\frac{1}{2}$ mm.

Locality: South-West Africa: Aus in Great Namaqualand (Turner, Jan. 1930).

Villa flavalis n. sp.

Body black, but with the usual reddish parts and with the apices of third antennal joints or even entire joints tending to be brownish; hind margins of tergites and sternites narrowly yellowish brownish to a variable extent; legs with the femora and tibiae almost entirely luteous or yellowish, the anterior surfaces of front femora and to a certain extent also those of middle and hind ones and apices of tibiae may be obscurely slightly more brownish, the apical halves of tarsi at least dark. *Vestiture* with the hairs and scales on face whitish, but some hairs down middle slightly more yellowish; hairs on frons and antennae above black; hair in collar, on humeral part and in upper part of mesopleural tuft pale sericeous yellowish to straw-coloured yellowish or whitish; that on pleurae and sides of abdomen more whitish; fine erect hairs on disc of thorax pale; prealar, postalar and scutellar bristles yellowish; hairs on abdomen above entirely or predominantly gleaming sericeous yellowish, only a few apically on each side of last tergite sometimes dark; tufts apically on extreme sides of tergites 4 and 5 (usually visible on sides of 5 and 6), as well as some intermixed hairs on last sternite, black; hairs on venter gleaming sericeous yellowish; some coxal bristles reddish golden; scaling on frons relatively dense, yellowish; that on thorax and scutellum above mostly yellowish or greyish yellowish; that on abdomen above predominantly pale, no black ones on disc, but only a few long scales on sides in black tufts dark or black; the pale scaling yellowish to ochreous yellowish, that transversely and band-like across apical parts of tergites 2-4 deeper ochreous or even more orange or brownish ochreous; scales on venter mostly whitish; those on legs whitish to very pale yellowish whitish, no black or dark scaling being present. *Wings* vitreous hyaline; costal cell opaquely yellowish and base yellowish; veins yellowish to pale yellowish brownish; squamae yellowish; patagium and basal comb with whitish scales which appear creamy in certain lights. *Head* with the interocular space on vertex in ♀ about $2\frac{1}{2}$, or a little less, times width of tubercle; space between antennae subequal to length of third antennal joint; the latter bulb-shaped,

its styliform part gradually tapering, the apical slender part a little longer than bulb-like base. *Legs* with about 5 spines on anterior lower aspect and 2 behind on middle femora and about 5 or 6 on hind ones below.

From a ♀-type in the South African Museum and a ♀-paratype in the Transvaal Museum.

Length of body: about 9 mm.

Length of wing: about 8–8½ mm.

Locality: South-western Cape: Matroosberg in Ceres Division (Lightfoot, Nov. 1917) (type); Somerset Strand (Brauns, Feb. 1924).

Easily recognized and distinguished from all the preceding species by its covering of entirely yellowish and ochreous yellowish scales on abdomen above, predominantly pale hairs on abdomen, and entirely yellowish legs.

Villa flavipes (Lw.)

(Loew, p. 215, *Dipt. Faun. Südaf.*, i, 1860 (as *Anthrax*).)

A solitary ♀-specimen from Pretoria in the collections of the Commonwealth Institute agrees more than any other species with the description given by Loew, and there is very little doubt that it belongs to this species. Compared with Loew's description and also with this ♀ all the other specimens in the collections before me which have been determined and labelled as *flavipes* by Bezzi obviously do not belong to it and have consequently been referred to other species by me. Loew's species is characterized as follows:

Body black, but sides of tergites 1 and 2 and base of 3 yellowish reddish; legs almost entirely yellowish except for the dark scaling on anterior aspect of extreme apices of femora and the more or less dark apices of the tibiae and dark tarsi. *Vestiture* with the hairs on face and body sericeous yellowish, those on sides of abdomen ceasing on sides of tergite 4, and even fine hairs on disc of thorax pale, not blackish; dark or black hairs present on frons, antennae above, as a couple of black bristles at apex of scutellum and posteriorly on tergites 5–7; no conspicuous dark tufts on sides of tergites 5 and 6, only some longish black scales on these sites being visible from below; scaling on pleurae more whitish; that on front part of body above rather dense, mostly yellowish; that discally on scutellum and as indistinct bands on thorax, however, black; yellowish scaling on abdomen above dense, arranged in three conspicuous transverse bands across bases of tergites 2–4 (that on 4 distinctly not occupying entire surface) and more or less across entire 5–7; black scaling on abdomen above also dense and occupying rest of surface; scales on venter also relatively dense, more whitish; that on legs yellowish, more whitish on femora above and on hinder surfaces. *Wings* vitreous hyaline; base yellowish and costal cell subopaquely yellowish whitish; squamae yellowish; veins yellowish brownish; patagium and basal comb scales yellowish. *Head* with the interocular space quite three times width of rather small ocellar tubercle; space between antennae subequal

to length of third antennal joint; the latter bulb-like at base, its slender part nearly three times length of base. *Legs* with 2 spines on lower outer aspect of middle femora and about 4 shortish ones on hind ones.

Length of body: about 8 mm.

Length of wing: about $8\frac{1}{2}$ mm.

Locality: Transvaal: Pretoria (M.O., 18 Oct. 1928).

Villa lasia (Wied.)

(Wiedemann, p. 296, *Aussereurop. Zweifl. Ins.*, i, 1828 (as *Anthrax*).)

(Syn. = ♀-*sexfasciata* Bezzi, in part, nec Wiedemann, p. 127, *Ann. S. Afr. Mus.*, xviii, 1921.)

(Syn. = *vitripennis* Bezzi, in part, nec Loew, pp. 127 and 128, *Ann. S. Afr. Mus.*, xviii, 1921.)

A very large number of specimens of *Villa* in the collections before me agree in essentials with the rather brief description of Wiedemann's *lasia* which was based on a ♂-specimen from the Cape. As this species appears to be very widely distributed in South Africa and to be very variable even within restricted areas of its occurrence a more detailed description of both ♂♂ and ♀♀ is as follows:

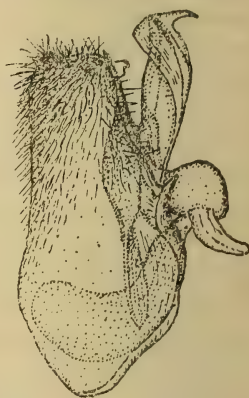
Body mainly black; sides of tergites 1-3 (or 4) constantly reddish to a variable extent, sometimes rather extensively so; base or basal half of venter (or even entire venter) and hind margins of sternites and sometimes even narrowish hind margins of posterior tergites also reddish to a variable extent; sutural parts of pleurae or sometimes even entire pleural parts reddish brown to a variable extent; apex of scutellum occasionally tinted reddish; legs luteous, yellowish or yellowish brownish, the outer apical part or extreme apices of femora and the apical parts of the tibiae to a variable extent dark or black-scaled and the tarsi usually darkened. *Vestiture* with the hair very variable in colour, usually predominantly straw-coloured whitish, sericeous yellowish, cream-coloured to yellowish or even golden, but sometimes even sericeous or snow-whitish; that on body below and on sides of abdomen usually paler, more whitish or sericeous white; hairs on face sericeous whitish to yellowish, usually tinted more yellowish or golden down the middle and around apex of buccal cavity, sometimes with some or even numerous dark ones down middle; hairs on frons, on antennae above and in tufts on sides of tergites 5 and 6 in both sexes and across hind margins of tergites 4-7 (or in some forms 2-7) in ♀, more often also on last tergite in ♂ and always on last sternite in ♀, black; fine hairs on disc of thorax and scutellum usually also dark; prealar, postalar and scutellar bristles pale, whitish to yellowish, reddish yellow, reddish to gleaming golden; some coxal bristles sometimes also gleaming reddish yellowish; hairs on venter gleaming whitish, sericeous yellowish to reddish golden; spines of ovipositor in ♀ golden yellowish or reddish golden; scaling on face dense, mainly white, sometimes

slightly tinted creamy or yellowish; that on frons greyish, greyish yellowish, dull yellowish to ochreous; scaling on thorax above and on hind border of scutellum greyish yellowish to ochreous yellowish, especially in ♀, that on thorax usually in pale bands separated by dark scaling; scaling on body below white or snow-white, rather dense and conspicuous, especially on sternopleuron, metapleural part and venter; scaling on abdomen above composed mainly of white, cream-coloured or yellowish ones and dark or black ones, the whitish or pale ones arranged in broadish bands across more or less basal halves of tergites 2 and 3 (less distinctly in ♂), across entire or greater part of 4 and across more than apical halves of 5-7; pale ones on sides of 4, 6 and 7 and those intermixed with black ones on sides of 5 and 6 and densely on sides of 7 more snow-white and longer; dark scales on abdomen above occupying rest of surface not occupied by pale scaling and also in form of some black scales hidden among pale hairs and scales on sides of tergites 2 and 3, some longish black ones in tufts on sides of 5 and 6 and in some varietal forms to a variable extent across middle part of hind margin of last tergite, especially in ♀; scaling on legs mostly whitish, yellowish white to ochreous yellowish, but dark or black on outer apical parts or apices of femora and apical parts of tibiae. *Wings* vitreous or glassy hyaline; base and costal cell subopaquely or opaquely yellowish whitish to yellowish brownish, sometimes however more whitish or almost clear; squamae yellowish white to pale yellowish brownish, with a whitish to pale fulvous yellowish fringe; patagium silvery in ♂, but with dark scales in ♀; basal comb mostly silvery and with much white scaling in ♂, whitish-scaled basally and yellowish distally in ♀; upper cubital branch with its posterior bend deep, tending to be almost at right angles; first posterior cell sub-spindle-shaped, narrowed apically, but yet widely open. *Head* with the interocular space on vertex in ♂, at narrowest part, about 1.6-1.7 times width of ocellar tubercle (depending upon size of tubercle) and in ♀ a little more than 2, to nearly or about 3, times width of tubercle; space between antennae subequal to length of third antennal joint; the latter bulb-like at base, its slender part gradually tapering at first and about twice length of bulbular part. *Legs* with about 2-7 spines on anterior lower part and 2-4 on hinder part of middle femora; hind femora with about 5-11 spines below; front tibiae with the spicules distinct. *Hypopygium* of ♂ (text-fig. 179) slightly variable, but very much like that of *sexfasciata*; apical part of aedeagal process with a downwardly directed process or hook on each side apically below.

In the British, Transvaal and South African Museums and in the Commonwealth Institute.

Length of body: about 7-13 mm.

Length of wing: about 7-13 mm.



TEXT-FIG. 179. Side view of hypopygium of ♂ *Villa lasia* (Wied.) showing the aedeagus and other structures in dotted outline inside the two basal parts.

Locality: All the provinces of the Union of South Africa and also South-West Africa and according to Bezzi also in East Africa.

This widely distributed species is very variable in size, the extent of the dark scaling on apical parts of femora, the intensity of the infuscation in costal cell and the colour of the hairs on body above. One form, represented by specimens from the Cape Peninsula, South-West Africa and the Transvaal, is entirely sericeous-white-haired, especially in the ♂, has the costal cell whitish or almost clear and some constant black scales across hind margin of last tergite. Another form is almost entirely golden-haired, very much deeper yellowish than in more typical form. Some representatives from Namaqualand and Bushmanland and from the mountainous parts of the Western Cape Province have a constant streak of dark hairs down the middle of face and are on the whole larger and more bulky.

One ♀ from Hex River was wrongly identified as *sexfasciata* by Bezzi and two other specimens from Gaub and Otjivarongo respectively were labelled as *vitripennis* by the same author. The transverse bands of pale scaling in *sexfasciata* are however entirely differently arranged and the femora are usually very dark or black. In *vitripennis* again the tufts of black scales on sides of tergites 2 and 3 and also on sides of 5 and 6 are conspicuous and not hidden among pale hairs and the pale scaling across tergites 3, 5 and 6 are more yellowish or ochreous.

It is however probable that Macquart's *rufipes* (p. 73, *Dipt. Exot.*, ii, 1840) may prove to be only a synonym of *lasia*. Macquart's description is however so vague and unsatisfactory that it is impossible to identify any species with reddish legs from it.

Villa apiformis n. sp.

(Syn. = *flavipes* Bezzi, nec Loew, p. 127, *Ann. S. Afr. Mus.*, xviii, 1921.)

The ♂ of this species was obviously wrongly identified as *flavipes* (Lw.) by Bezzi. When compared with Loew's description of the latter (p. 215, *Dipt. Faun. Südafr.*, i, 1860) it is found to differ in having slightly broader pale bands across bases of tergites 2 and 3 and the band across 4 covers the entire tergite, in having the extreme sides of tergites 2 and 3 more conspicuously black-scaled, and also with fulvous hairs on extreme sides of these tergites, and the whitish hairs on sides of abdomen basally are even shorter. Moreover the costal cell and base of wings tend to be darker, more yellowish brownish, and backward bend of upper branch of cubital fork is more angular. It is apparently closer to the preceding species of which it may almost be considered as a variety, agreeing with it in most of its characters. It, however, differs from *lasia* in having the hairs on sides of abdomen distinctly and markedly shorter; those on rest of abdomen above also relatively shorter; hairs on extreme sides in apical parts of tergites 2 and 3 distinctly fulvous or brownish fulvous; tufts of dark scales on sides of 5 and 6 much shorter, inconspicuous or hidden among the pale elements; sides of tergites 1-3 and venter below more extensively yellowish or

reddish; and the femora also tending to be more extensively yellowish; styliform part of antennal joint 3 slightly more gradually tapering, appearing more conical.

From a ♂ and a ♀ in the South African Museum.

Length of body: about $10-10\frac{1}{2}$ mm.

Length of wing: about $9\frac{1}{2}-10\frac{1}{2}$ mm.

Locality: Namaqualand: Klipfontein (Péringuey) (holotype). Moordenaars Karoo in the Laingsburg Dist. (Mus. Exp., March 1937) (allotype).

This species, like *flavipes*, *lasia* and the species described below, has a marked resemblance to some of the banded species of *Anthophora*-bees. In this case the superficial resemblance is to a species belonging to the *Anthophora circulata*-group.

Villa anthophoroides n. sp.

(Syn. = *lasia* Bezzi, nec Wiedemann, p. 129, *Ann. S. Afr. Mus.*, xviii, 1921.)

Bezzi doubtfully assigned two specimens of this species to *lasia* (Wied.). According to the description of Wiedemann (p. 296, *Aussereurop. Zweifl. Ins.*, i, 1828) and specimens in the collections before me which I have determined as *lasia*, the latter species is, however, much smaller, with longer hairs on sides of abdomen, less dense hairs on abdomen above, more whitish hairs and scales on pleurae and coxae, a relatively narrower face, with less red on body, a more constantly black scutellum and a narrower costal cell. These specimens on the contrary are distinctly very much larger and are characterized as follows:

Body black, with the usual parts reddish, but with the apical part of scutellum discally also reddish or ferruginous; base of venter, sternites 2 and 3 laterally to a variable extent, more or less basal parts of the other sternites and last sternite yellowish to pale orange yellowish; legs with coxae brownish, the femora and tibiae yellowish or luteous, the extreme apices of the former, especially on anterior aspect, and the apical parts of tibiae darkened like the tarsi. *Vestiture* with the hairs on face gleaming slightly yellowish, a few scattered ones basally dark; scaling on face rather dense, whitish; that on frons anteriorly more brownish or ochreous yellowish; hair on body rather dense and on abdomen above denser and more furry than in most of the preceding species, predominantly yellowish; that in collar region and upper part of mesopleural tuft appearing deeper yellowish or more orange yellowish whereas that on lower parts and sides of abdomen more creamy yellowish or even whitish; a tuft of dark hairs and elongate dark scales on extreme sides of tergites 2 and 3, but more or less hidden by pale hairs; more conspicuous dark or black tufts of hairs and scales on sides of 5 and 6; black bristles present across middle parts of hind margins of 5-7, slightly more numerous in ♀; prealar, postalar, scutellar and coxal bristles gleaming reddish golden; hairs on venter also gleaming reddish golden, those across hind margin of last sternite in ♀ dark; hair-like scales on

each side above wing-bases and on pleurae whitish; fine scaling on disc of thorax disposed in three ochreous bands, separated by black scaling which is also present on disc of scutellum; scaling at base of thorax and across hind border of scutellum dense and yellowish or ochreous; scaling on abdomen above rather dense, composed of pale and black ones, the former yellowish to deep ochreous yellowish and arranged in broadish transverse bands across bases of tergites 2 and 3, across entire disc of 4, across more than apical halves of 5 and 6 and on entire tergite 7; some pale or ochreous scales also present medially and discally on tergite 2 in ♀; dense, longish and more whitish scales on sides apically of 5-7; scaling on venter dense, whitish; that on legs mainly deep ochreous yellowish, appearing paler or more whitish on upper and hinder surfaces. *Wings* short in relation to body, vitreous hyaline; base and costal cell opaquely yellowish reddish to yellowish brownish; costal cell markedly broadish; veins yellowish reddish or brownish; squamae yellowish, their fringe slightly fulvous; patagium and base of basal comb whitish in ♂, more ochreous in ♀; first posterior cell spindle-shaped, narrowed apically; second posterior cell broader apically than its length along vein separating it from third posterior cell. *Head* with the interocular space at narrowest part only a little wider than ocellar tubercle in ♂, quite 3 times width of tubercle in ♀; space between antennae a little broader than length of third antennal joint; face thus broader; antennal joint 3 conical, slightly more so in ♀, at first gradually narrowing from bulb-like base, then more or less slender in less than apical half. *Legs* with rather numerous spines, about 5-7 on anterior lower and 4-8 on posterior lower part of middle femora and about 7-10 on hind ones below. *Hypopygium* of ♂ like that of *sexfasciata* and *lasia*, with a very similar-shaped aedeagal process, ending apically below into two downwardly directed hooks.

From a ♂ and 3 ♀♀ in the South African Museum.

Length of body: about 15-16 mm.

Length of wing: about $12\frac{1}{2}$ -13 mm.

Locality: Bushmanland: Jakkalswater (Lightfoot, Oct. 1911) (types). Namaqualand: Wallekraal (Mus. Exp., Oct. 1950).

Easily recognized by the large size, deep yellowish or golden hair which is markedly dense and furry on the abdomen, the broadish bands of pale scaling and the yellowish or luteous legs. Superficially it has some resemblance to one of the larger species of *Anthophora*, such as *A. festiva* or *A. gigantea*.

Villa kaokoënsis n. sp.

Very near *anthophoroides*, but differing in the following respects:

Scutellum entirely black; sternites 2-6 without red basally or on sides; interocular space on vertex in ♂, at narrowest part, distinctly narrower, the space scarcely wider than small ocellar tubercle and less broad than length of

second joint of front tarsi which in *anthophoroides* is considerably more than length of the same tarsal joint; space between antennae also distinctly narrower, much less than 3 times combined length of antennal joints 1 and 2 (quite or nearly 3 times combined length of joints 1 and 2 in *anthophoroides*); pale hairs and bristles on abdomen above and below slightly more whitish, not gleaming sericeous yellowish or reddish golden; bands of pale scaling also more whitish; hind femora below with slightly more numerous, about 10–12 spines, which are more irregularly arranged in more or less two irregular rows; wings in relation to body slightly longer, about as long as body. *Hypopygium* is, however, very similar.

From a ♂ in the South African Museum.

Length of body: about 13 mm.

Length of wing: about 13 mm.

Locality: South-West Africa: Cayimaais in the Kaokoveld (Mus. Exp., March 1925).

Villa niphobletoides n. sp.

(Syn. = *niphobleta* Bezzi, nec Loew, pp. 83 and 84, *Broteria* (Ser. Zool.), xx, fasc. ii, 1922.)

One ♂-specimen of this species was wrongly assigned to the Palaearctic species *niphobleta* which Loew described from a ♀ in 1869. From Loew's description (p. 186, *Beschreib. Europ. Dipt.*, i) it is quite evident that the latter differs from this species in being smaller, in the absence of black hairs on the antennae, the presence of dark hairs on disc of thorax, the absence of distinct transverse bands of dense white scaling on abdomen above and its darker legs with darker scaling. Even when compared with Engel's redescription of Loew's species (p. 593, *Die Fliegen d. Pal. Reg.*, lief. 111, 1937), in which he obviously confuses at least two different species and in which I think he erroneously relegates *nana* Beck. as a synonym of *niphobleta* s. str., the ♂ at least differs in not having black hairs across hind margins of the tergites.

This species belongs to the *anthophoroides* and *kaokoënsis*-section and is recognized by the following characters:

Body black; sides of tergites 1–3 rather extensively reddish; base of venter and sometimes also middle parts of sternites 2–4 also reddish; postalar calli and sutural parts of pleurae reddish brownish to a variable extent; legs dark reddish brownish, the anterior surfaces of front and middle femora and upper part of hind ones darkened and dark-scaled, and anterior surfaces of tibiae and their apical parts also darkened to a variable extent like the tarsi. *Vestiture* with the hair above and below predominantly sericeous whitish in ♂, but that in collar and prealar part in ♀ tinted slightly more yellowish; hair on frons and antennae above black; hair on abdomen above rather dense and furry in ♂, without any dark or black ones except discally on tergites 5 and 6, but not posteriorly on last tergite, but with black hairs on last three tergites and also on

last sternite in ♀; tufts of dark or black hairs and scales present on sides of tergites 5 and 6 in both sexes and also some hidden dark hairs and scales on extreme sides of 2 and 3; dense hair-like scaling on sides of thorax above wings and on pleurae show white in both sexes; scaling on frons greyish yellowish; fine scaling on thorax above greyish whitish to dull yellowish in ♂, more yellowish to golden in ♀, especially basally, the pale scaling on thorax more or less in bands separated by sparse dark scales which is also present on disc of thorax; scaling across hind border of scutellum greyish white in ♂, more yellowish in ♀; scaling on abdomen above dense, composed of whitish and black ones and some ochreous ones, the white ones arranged in broadish bands across basal halves of tergites 2 and 3, almost entire 4 and apical parts of 5-7, those on sides of 4-7 denser and whiter in ♂ at least and those on sides of these tergites longer and denser; black scales usually present across parts of tergites not occupied by the white ones and also on sides of tergites 5 and 6, and the yellowish ones, more evident in ♀, across middle parts between white and black ones on tergites 5 and 6; scaling on venter snow-white; that on legs mostly whitish, but more greyish yellowish to yellowish on anterior upper part of femora. *Wings* rather pointed apically, vitreous hyaline; base and costal cell opaquely yellowish brownish to reddish brownish; squamae yellowish, fringed with rather long white scales; veins yellowish brown; costal cell rather broadish; basal comb well developed; patagium and greater part of basal comb gleaming silvery in ♂, dark in ♀; second posterior cell, in ♂ especially, much broader apically than long along vein separating it from third cell; first posterior cell sub-spindle-shaped, but broadly open. *Head* with the interocular space on vertex in ♂, at narrowest part, about as wide or a little wider than ocellar tubercle, and in ♀ about 3 times width of tubercle; antennal joint 3 onion-shaped at base, gradually tapering apically; joint 1 rather longish. *Legs* with some spinelets on outer apical part of front femora; middle ones with about 5-8 spines on anterior lower part and 2-4 on posterior lower part; hind femora with about 6-8 spines below; front tibiae with distinct spicules as in most other species.

From 4 ♂♂ and 1 ♀ (types in South African Museum and a paratype in the Transvaal Museum).

Length of body: about $14\frac{1}{2}$ -15 mm.

Length of wing: about $13\frac{1}{2}$ -15 mm.

Locality: Koup Karoo: Koup Siding (Mus. Exp., Oct. 1952) (allotype). Tankwa Karoo: Waterval on the Tankwa River (Mus. Exp., Nov. 1952) (holotype). Karoo: Willowmore (Brauns, Nov. 1917); Richmond Dist. (Mus. Exp., Nov. 1939).

Easily recognized by the rather woolly or furry hair on abdomen of ♂. It differs from *anthophoroides* and *kaokoënsis* in having more sericeous whitish hairs and white scaling on body, no dark hairs on last two tergites in ♂, slightly more pointed wings, a more pointed discoidal cell and darker or more reddish brown legs.

Villa chionalis n. sp.

This species, which apparently also belongs to the *anthophoroides* and *niphobletoides*-section, but which resembles the latter, is characterized as follows:

Body mainly black; buccal cavity mud-coloured; sides of tergites 1 and 2 reddish brownish; pleurae and base of venter in the middle sometimes infused with brownish or yellowish brownish to a variable extent; femora mainly black, but the apices or knees obscurely more yellowish brownish and tibiae, except their apical parts, also more yellowish; tarsi black. *Vestiture* with the rather dense hairs on body above and below in ♂ at least entirely snow- or sericeous white there being no black hairs even on the sides of any of the tergites; hairs on frons, on antennae above and in a small tuft between the antennae black; those on face among the dense white scales gleaming sericeous whitish, but sometimes with a few dark ones along middle basally from black tuft between antennae; scaling on frons greyish yellowish; the fine ones on thorax above mainly whitish, sometimes with a very faint greyish yellowish tint; scaling on abdomen above composed of snow-white and black ones; the former arranged in rather well-defined and conspicuous broadish bands across about basal half of tergite 2, slightly less than basal half (middle) of 3, across entire or greater part of 4, across apical halves of 5 and 6 and greater part of 7, these pale bands broader on sides; black scaling on abdomen occupying parts not occupied by white ones and sometimes as a very few longish ones on sides apically of tergites 3 and 5 (however entirely hidden and obscured by white hairs); scaling on pleurae, coxae and venter dense and entirely snow-white like the hairs; scaling on legs mainly whitish on femora, but pale greyish yellowish on outer apical parts of femora and on tibiae and usually with some dark ones on outer apical parts of femora and apical parts of tibiae. *Wings* glassy hyaline, but with a very faint milky whitish tint in certain lights; base and costal cell opaquely very pale yellowish whitish; patagium silvery whitish and basal comb white-scaled; false vein and lower one of second basal cell yellowish, the rest of veins brownish; squamae yellowish white, the fringe snow-white; first posterior cell sub-spindle-shaped, narrowed apically but still widely open; knobs of halteres whitish. *Head* with the interocular space on vertex in ♂ only a little wider than ocellar tubercle; antennal joint 3 with its broad base bulb-shaped, rather rapidly narrowed to a rather long slender part which is a little more than twice the length of bulbular part. *Legs* with about 3-7 spines on anterior lower and 2 on posterior lower part of middle femora; hind ones with about 5-7 spines below and a few apical ones above; front tibiae with the spicules normally developed.

From 4 ♂♂ in the South African Museum.

Length of body: about $11\frac{1}{2}$ -13 mm.

Length of wing: about $10\frac{1}{2}$ -12 mm.

Locality: Koup Karoo: Dikbome (near Merweville) in the Laingsburg Div. (Mus. Exp., Oct. 1952).

Easily recognized by the snow-white hairs and scales on body and the rather well-defined bands of white scales on abdomen. From *niphobletoides* which it very closely resembles it however differs in the paler base and costal cell in wings, the entire absence of conspicuous tufts of black hairs and scales on sides of tergites 5 and 6, the less extensive red on sides of abdomen and the black femora.

Species incertae sedis

South African species of *Villa* not represented or not identified in the collections before me.

Villa apparens (Walk.), p. 180, *Insecta Saunders.*, *Dipt.*, i, 1852 (as *Anthrax*).

Villa dizona (Lw.), p. 216, *Dipt. Faun. Sudafr.*, i, 1860 (as *Anthrax*).

Villa dubia (Macq.), p. 73 and tab. xxi, fig. 1, *Dipt. Exot.*, ii, 1840 (as *Anthrax*), which may prove to be the same as *sexfasciata* (Wied.).

Villa rufipes (Macq.), p. 72 and tab. xxi, fig. 1, *Dipt. Exot.*, ii, 1840 (as *Anthrax*).

Gen. *Oestranthrax* Bezz.

(Bezzi, p. 130, *Ann. S. Afr. Mus.*, xviii, 1921 (n. gen. sine descr.);

Bezzi, p. 326, *Voyage de Ch. Alluaud et R. Jeannel en Afr. Or.*, *Dipt.*,

vi, 1923; Bezzi, p. 189, *The Bombyliidae of the Ethiopian Region*, 1924;

Paramonow, p. 95, *Mem. Acad. d. Sc. de l'Ukraine*, No. 9, 1931;

Engel, p. 556, *Die Fliegen d. Pal. Reg.*, lief. 105, 1936.)

This genus was erected by Bezzi to contain *obesus*, an anomalous South African species, which Loew described as an *Anthrax*, but which on account of its peculiar and much reduced mouth parts and other characters obviously differs from *Anthrax*. Bezzi first referred to this new genus in 1921 (loc. cit.) without giving any adequate description, merely stating that he had described it in 1912 which however he never did. Only in 1923 (loc. cit.) did he give a comparative description which he more fully supplemented in 1924. At that time he based his description on only two known South African species, the genotype *obesus* (Lw.) and *speiserianus* Bezz., another form from East Africa. Subsequently Paramonow described four other species and two varieties, of which three are Palaearctic in distribution, under this genus. Finally Engel revised the genus and all its species in 1936. All together three African species, south of the Sahara, have been allocated to it. Another new species is described in this revision. The characters of this genus, as based chiefly on the genotype species and the new species, are as follows:

Body with much yellowish, brownish, reddish brownish or sienna brownish on head in front, pleurae, postalar calli, scutellum and to a variable extent on abdomen above and below; legs usually mainly yellowish brownish or reddish brown, with the apices of femora or tibiae or apical parts of tarsi sometimes darkened to a variable extent; mesopleuron rather prominent, convex, distinctly

more so than in *Villa*. *Vestiture* with the erect hairs on the whole shortish, dense on pleurae, antero-laterally on thorax, in metapleural tuft and basally on sides of abdomen; hair tending to have a shortish shorn-off appearance; hairs on abdomen from at least tergite 3 poorly developed, sparse, very short; distinct longish bristly ones present only on last two tergites; those on sides of abdomen also slightly longer and denser than discally; hair on venter shortish or very short and sparse; macrochaetal bristles absent; hypopleuron entirely bare; sternopleuron covered with scaling and hairs; body above and below with fairly dense, depressed, flattened scaling; that on face fairly dense and longish, especially on sides; that across hind margins of tergites and on venter broader, less hair-like than rest; scaling on pleurae and coxae in ♂♂ tending to be more linear and hair-like than in ♀♀; scaling on tergites arranged as transverse white, whitish or pale bands across bases and narrower intensely black bands across hind margins, with yellowish, ochreous or sometimes dark scaling on discal parts in between and without any long, conspicuous scales on sides as in some species of *Villa*; whitish scaling across sternites denser, more concentrated across hind margins; scaling on legs in form of flattened, depressed ones, that on hind tibiae not conspicuous and feathery. *Wings* shortish, strongly developed; veins strong and thick, especially in costal part; the wings usually vitreous hyaline or greyish hyaline; base and costal cell or costal part, including marginal and first basal cells and even second basal cell, sometimes tinged yellowish or brownish to a variable extent; basal hook and a patagium present; submarginal cells two in number; second vein relatively short, originating at right angles or very obtusely opposite or a very little in front of middle cross vein, with or without an indication of a stump at basal bend; middle cross vein usually at or very near middle of discoidal cell; latter markedly broad, its apical cross vein straight or only feebly sinuous; second basal cell shortish, conspicuously broad, quite as broad as discoidal cell; first posterior cell usually with its basal half narrowed, its apical part broadly open; second posterior cell usually shortish, rarely much longer than about half length of discoidal cell; base of lower vein of discoidal cell often with a stump or an indication of one; anal cell narrowed apically, sometimes acuminate and closed on hind margin, not however stalked; axillary lobe broad, much broader than anal cell; alula lobe-like, with scaly fringe; squamae well developed, fringed with scales. *Head* globular, narrower than broadest part of thorax; occiput relatively shorter than in *Villa*, the lobes approximate; eyes comparatively narrow, much narrower (shorter) at level of antennae than in *Villa*, more bean-shaped or reniform, their hind margin rather shallowly, but obtusangularly, indented, the bisecting line from indentation quite distinct; eyes separated on vertex in both sexes, only slightly less so in ♂♂ than in ♀♀; ocellar tubercle small, more prominent in ♂♂; frons rather rapidly broadening anteriorly, slightly convex or bulging, with only a very feeble central depression at about middle in ♀♀, scarcely evident in ♂♂; face broad, convex, in profile somewhat tumidly prominent and curved, separated from buccal cavity and genae by a deep oblique furrow on each side; genae distinct,

relatively broad; space between eyes across buccal cavity relatively broad; buccal cavity very much reduced, in form of a short oval depression, much shallower than in any other Bombyliid-genus except in *Villoestrus* and the new genus described below; proboscis much reduced, very short or vestigial, usually slightly shorter than the pointed horny labrum-epipharynx, its labellar part visible as minute or vestigial lobes; palps short or very short, but distinct; antennae (text-fig. 180, left) widely separated, with joint 1 thickish, slightly projecting on inner part apically and with some shortish, bristly hairs; joint 2 transverse, broader than long, very much shorter than 1; joint 3 club-shaped, rapidly broadened bulb-like basally, the broad base scarcely or only slightly broader than joint 2, rest of joint slender, filiform or rod-like, usually much longer than broad base, ending apically in a short hair-like stylet. *Legs* relatively short; front coxae relatively thick or incrassate; femora with hair-like spicules, without any spines on front ones; middle and hind ones with some short spines or spinelets below; front and middle femora with short, sparse, bristly hairs on lower lateral aspect, especially posteriorly; tibiae with more numerous spicules than in *Villa*, but those in upper inner and outer and lower inner and outer rows on middle and hind tibiae slightly longer and in more obvious rows, those in outer upper row on hind ones denser, the apical spicules or spurs the longest, but relatively short in comparison with other genera; front tibiae slightly curved, with a fine brush on lower part; tarsi very much shorter than tibiae, the first joint not markedly thickened than rest of joints; front tarsi, though shortest, not modified and hairy as in *Villa* and other genera; claws curved, without a basal tooth and front ones not reduced; pulvilli wanting. *Hypopygium* of ♂ (text-fig. 180, right) very much like that of *Villa*, especially of the *leucochila*-section; beaked apical joints compressed apically, more or less twisted, bifid apically as in *Villa*; aedeagal apparatus with a relatively short aedeagus and a well-developed scoop-like aedeagal process of which the central, dorsal, apical part is raised keel-like; lateral struts projecting straight out laterally; basal strut not projecting beyond bases of basal parts.

This remarkable genus, as well as *Villoestrus* and the new one described below, cannot be confused with any other genera of the *Exoprosopinae* for in no other known genera, except in a new genus *Xenoprosopa* described in the appendix, are the mouthparts so reduced or vestigial. Only two species are known from South Africa of which *obesus* (Lw.) is the genotype.

Key to the known South African and East African species

1. (a) Legs entirely yellowish or reddish yellow, even extreme apices of femora not or scarcely darkened; slender part of antennal joint 3 yellowish and entire antennae more often yellowish or reddish; discoidal cell and base of second vein usually with distinct or an indication of stumps; knobs of halteres whitish or very pale above; scaling on abdomen above in form of white or whitish cross bands across apex of tergite 1, base of 2, base of 4 and across 6 and 7, black ones across hind margins of 2-4, separated by extensive yellowish, ochreous or ochreous brownish ones on disc; hairs on sides and discally at

base of abdomen relatively shorter, even in ♀; interocular space on vertex broader, about $2\frac{1}{4}$ –3 times in ♂ and 3–4 times in ♀ as broad as ocellar tubercle.

- ♂ ♀ *obesus* (Lw.) (p. 512)
- (b) Legs either with the extreme apices of femora more distinctly darkened or black or hind tibiae also black or darkened; slender part of antennal joint 3 or entire joint 3 and also 2 above (or entirely) darkened or black; discoidal cell and base of second vein usually without stumps or with scarcely an indication of such; knobs of halteres darkened or brown; scaling on abdomen above either without distinct or well-defined pale ones in cross bands, or, if with similar contrasting whitish bands, with more extensive black scaling on disc in addition to black bands across hind margins of tergites 2–4; hairs on sides and on disc at base of abdomen relatively longer, especially in ♂♂; interocular space narrower, only about or scarcely 2 times in ♂♂ and in ♀♀ less than or scarcely 3 times the width of tubercle. 2
2. (a) Infuscation in wings more extensive, occupying also much of second basal cell in addition to greater basal part of marginal cell and entire first basal cell; second posterior cell much shorter, less than or scarcely half length of discoidal cell; entire occiput, sides behind eyes and basal half of frons black; proboscis and palps relatively longer; slender part of antennal joint 3 longer, about $2\frac{1}{2}$ –3 times length of broad base; spicules on front tibiae less developed, shorter and fewer. ♂ ♀ *disparilis* n. sp. (p. 515)
- (b) Infuscation in wings less extensive, occupying only base, costal cell and first basal cell or in addition also basal half of marginal cell, but not extending into second basal cell; second posterior cell relatively longer, more than half length of discoidal cell; only occiput medially and base of frons to a variable extent black; proboscis and palps a little more reduced; slender part of antennal joint 3 shorter, less than $2\frac{1}{2}$ –3 times length of broad base; spicules on front tibiae more distinct and more developed. 3
3. (a) Hind tibiae darkened or black; antennal joint 1 reddish and 2 and 3 black; abdomen above less extensively black, only three basal tergites black discally. ex descr. ♂ *speiserianus* Bezz. (p. 516)
- (b) Only knees of femora black; antennal joint 1 brownish and 2 and 3 dark brown; abdomen with basal discal parts of all tergites black. ex descr. ♀ *pix* Speis. (p. 517)

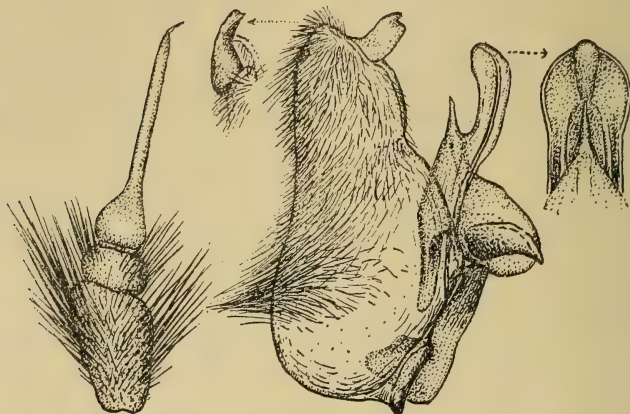
Oestranthrax obesus (Lw.)

(Loew, p. 14, *Wien. Ent. Monatschr.*, vii, 1863 (as *Anthrax*); Bezzi, p. 130, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 191, *The Bombyliidae of the Ethiopian Region*, 1924; Paramonow, p. 100, *Mem. Acad. d. Sc. de l'Ukraine*, No. 9, 1931; Engel, p. 560, *Die Fliegen d. Pal. Reg.*, lief. 105, 1936.)

Body, including scutellum, mainly yellowish, reddish or reddish brown; disc of thorax, central discal parts of tergites 2–3 (or 4) or sometimes even greater part of abdomen above (♀) and to a lesser and variable extent the occiput, basal part or half of frons, sternal parts and sometimes hinder parts of sternites darker reddish brown to almost black or even black; antennae mainly yellowish or yellowish red, the second joint and base of third sometimes more darkened, the slender part paler yellowish; facial part, proboscis and front part of frons sometimes luteous, orange yellowish to ochreous; legs entirely yellowish, yellowish red or reddish, only the spinelets and spicules and apices of claws black. *Vestiture* with the hairs on face, antennae below, pleurae, in metapleural

tuft, sides of abdomen basally, coxae and base of venter gleaming very pale sericeous yellowish or sericeous white; those down middle of face, some or numerous ones in collar, on humerus and in upper and anterior part of mesopleural tuft gleaming more yellowish to golden, fulvous or even brownish fulvous or reddish golden in some forms, especially in ♂; hair on frons and sides of antennae above black; fine, short hairs on disc of thorax, more evident anteriorly, reddish brown to almost black, especially in ♀; intermixed bristly hairs on each side in front of wings, especially in ♀, reddish golden to dark reddish brown or even black; hairs on sides of tergite 1 above and those across hind part of metapleural tuft sometimes dark reddish brown; some coxal bristles, especially on front ones, and short bristly hairs on inflexed sides of abdomen sometimes gleaming reddish golden; short hairs on hind margin of scutellum, sparse and short ones on disc of abdomen above and longer ones on sides of tergite 5 (or 4 and 5) and across hind margins of last two tergites and in some forms some hairs across base of sternite 2 black; spines of ovipositor gleaming reddish golden; scaling on facial part and behind eyes snow-white, that on frons more yellowish; hair-like scaling on pleurae, coxae and in streak above wing-bases on each side sericeous whitish to snow-white; scaling on thorax above fine, dense anteriorly, more or less arranged in three longitudinal bands of ochreous yellowish, fulvous, fulvous brownish to dark brownish ones, separated by dark or black ones, those on sides yellowish or brownish (excluding white or whitish streak) and those across base paler yellowish or whitish; scaling on scutellum black basally and on sides or sometimes also discally, yellowish or ochreous across hind border, but apex sometimes white-scaled; scaling on abdomen above composed of white or creamy, ochreous to ochreous brownish or brown and black ones; pale ones arranged as a broadish band of creamy white ones (snow-white on sides) across hind margin of tergite 1 and base of 2, as white ones across base of 3 on extreme sides (sometimes also scattered across disc), broadly across base of 4 and also across 6 and 7; black ones as narrow bands of broadish scales across hind margins of tergites 2-5 and on each side discally just before middle of 2; the yellowish, ochreous or ochreous brownish ones discally in between the white and black bands; scales on venter mainly snow-white, dense across hind margins of sternites, sometimes darker, more yellowish or even dark brownish across bases in some forms; scaling on legs mainly snow-white. *Wings* vitreous hyaline to slightly greyish hyaline; base, costal cell and first basal cell and in some ♀♀ to a lesser and variable extent basal part of marginal cell yellowish brown to reddish brown, usually more intense and distinct in ♀; veins yellowish, reddish yellow to dark reddish brown; squamae opaquely yellowish to yellowish brown, fringed with very pale fulvous to whitish or cream-coloured scales; base of second vein usually with a distinct or an indication of a stump, its apical part moderately recurved; upper branch of cubital fork originating almost at right angles, sometimes with a vestigial stump, rest of vein rather strongly curved in middle; second posterior cell short, about or a little less than half length of discoidal cell; lower vein of discoidal

cell usually with a distinct stump at its base or an indication of one, the base of this vein joining fifth vein only a little way before middle of fourth posterior cell; anal cell narrowed apically, sometimes closed on hind border; halteres yellowish or pale yellowish brownish, their knobs almost white. *Head* with the interocular space on vertex in ♂ about $2\frac{1}{4}$ –3 times width between outer margins of posterior ocelli, about 3–4 times this width in ♀; antennal joint 3 (text-fig. 180, left) club-shaped, its slender part very slender, filiform, quite 3 to even 4



TEXT-FIG. 180. Left: Inner view of right antenna of ♀ *Oestranthrax obesus* (Lw.). Right: Side view of hypopygium, apical view of right beaked apical joint, and dorsal view of apical part of aedeagal process of ♂ *Oestranthrax obesus* (Lw.).

times length of base; vestigial proboscis usually with the labrum-epipharynx projecting beyond the fleshy proboscis, the latter distinctly much shorter than antennal joint 3. *Legs* with about 2–5 spinelets on anterior lower part and 1 or 2 on posterior lower part of middle femora and about 4–7 on anterior lower part and 3–5 on posterior lower apical part of hind ones. *Hypopygium* of ♂ (text-fig. 180, right) with relatively much hair on basal parts; basal strut spanner-shaped.

In the Transvaal and South African Museums.

Length of body: about $12\frac{1}{2}$ – $16\frac{1}{2}$ mm.

Length of wing: about 11–14 mm.

Locality: South-western Cape, Southern Cape, Koup Karoo, Namaqualand, South-West Africa, Orange Free State, Transvaal and Rhodesia.

This widely distributed species appears to be slightly variable in size, in the coloration of the hair on front part of thorax, the extent of dark infusions on body above and the intensity of the costal infuscation in wings. Specimens from the Southern Cape differ from the more typical inland and northern form in having more or less basal half of frons and sternal parts more distinctly or

extensively darkened, the hair on body below gleaming whiter, more dark or reddish brown to blackish hairs intermixed on humerus and in front of wings, more or more distinct dark reddish brown hair on sides discally of tergite 1, some dark or blackish hairs across base of sternite 2, pale bands across abdomen which are whiter, more yellowish or even dark scales across bases of sternites and slightly darker veins in wings. A ♀ from South-West Africa (erroneously determined as *Villa leucochila* by Bezzi) may almost be considered as a distinct variety in which the costal infuscation is very conspicuously reddish brown, much of the marginal cell also infused, the knobs of halteres are pale brownish and in which a stump in the discoidal cell is lacking. Another ♂ from Matroosberg (3,500 ft. altitude) in the collections also differs from the more typical ♂ in having a slightly narrower interocular space on vertex, more dark hairs down middle of face, a very dark second antennal joint and base of third, more numerous golden brownish or fulvous brownish hairs on thorax anteriorly and on lower part of mesopleuron and also in the absence of a stump in discoidal cell. Judging from Bezzi's description of the two ♂♂ from Northern Rhodesia (p. 191, loc. cit.), these too probably represent some northern variety which differs in being smaller in size and in having more yellowish scaling in cross bands on abdomen. Two subspecies or varieties of *obesus* (*pallifrons* and *alfierii*) have been described from North Africa by Bezzi (p. 83, *Boll. Soc. Ent. Ital.*, 58, 1926) and by Paramonow (p. 101, *Mem. Acad. d. Sc. de l'Ukraine*, No. 9, 1931) respectively. These descriptions, in the absence of actual material for comparison, cannot be made to apply specifically to the *obesus* occurring in South Africa and the inclusion of these two subspecies in *obesus* appears to be doubtful.

Oestranthrax disparilis n. sp.

A couple of specimens (♂ and ♀) in the collections before me show such distinct differences that they cannot be considered as a variety or race of *obesus*, but as a distinct and separate species which differs from *obesus* in the following respects:

Body and legs also mainly yellowish red or reddish brown; front half of frons, face, buccal part, head below and broadish sides of abdomen however paler ochreous or orange yellowish; basal half of frons, occiput and entire sides of head behind eyes black; base of scutellum medially to about middle also black, not entirely reddish as in *obesus*; antennal joint 2 above (or entirely) and entire joint 3 dark or black; apices of femora above also more distinctly darkened. *Vestiture* with the hairs on sides and also discally of abdomen basally and on venter slightly longer, more distinctly so in ♂; hairs in collar, on humerus, mesopleural tuft, pleurae and base of abdomen entirely snow-white or sericeous white; hairs on venter not entirely sericeous white, but with an admixture of dark or dark reddish brown ones along middle; individual white scales in the similarly arranged white bands on abdomen above slightly narrower, more linear; black scales on abdomen above on the whole more extensive and not

occupying only hind margins of tergites as in *obesus*, the scales themselves also distinctly narrower; yellowish scaling on abdomen above less extensive; bases of sternites 3-7, but more especially 3, with darker or black scales. *Wings* more extensively infuscated reddish brownish in basal and anterior parts, the infuscation occupying base, costal cell, more than basal half of marginal cell, entire first basal cell, extreme bases of first submarginal and first posterior cells, much of the second basal cell (or at least as infusions along its bounding veins) and as a narrow infusion along upper vein of discoidal cell in basal half; veins reddish; bases of lower vein of discoidal cell and of second vein without or with scarcely an indication of stumps; apical part of second vein slightly more recurved; squamal fringe slightly more fulvous, especially in ♂; knobs of halteres darker, more brownish or brown. *Head* with the interocular space on vertex narrower, only about or scarcely 2 times distance between outer margins of posterior ocelli in ♂ and only a very little more than $2\frac{1}{2}$ times this distance in ♀; antennae distinctly closer together, more so in ♂, the distance between them distinctly less than length of antennal joint 3 (in *obesus* distinctly more than length of third joint); face thus relatively narrower; antennal joint 3 more gradually narrowed from bulb-like base than in *obesus* and slender part slightly stouter; buccal cavity distinctly more developed, longer; reduced proboscis distinctly longer, the soft parts (excluding labrum-epipharynx) much longer than antennal joint 3 (in *obesus* much shorter); palps also slightly longer. *Legs* with the spinelets and spicules less strongly developed; spicules on front tibiae distinctly fewer, shorter and feebler.

In the South African Museum.

Length of body: about 12-14½ mm.

Length of wing: about 11-13 mm.

Locality: Natal: Estcourt (Nov. 1896) (♀-allotype). Holotype (♂) (No. 3706) without locality-label, but probably also from the eastern part or north-eastern parts of the Union.

This species is easily recognized by the more extensively infuscated wings and the less widely separated antennae. It can only be confused with *speiserianus* which Bezzi described from Kenya (see below) and with which it appears to agree in many of its characters, but from which it apparently differs in having a longer slender part of third antennal joint, a longer proboscis, longer palps, pale or reddish hind tibiae, less developed and shorter spicules on front tibiae, slightly more extensive infuscation in wings which also extends into second basal cell, and a longer discoidal cell or a much shorter second posterior cell.

East African species of *Oestranthrax* not seen by me

In 1923 (p. 327, *Voyage de Ch. Alluaud et R. Jeannel en Afr. Or., Dipt., vi*). Bezzi described a species *speiserianus* from Kenya which according to the description appears to differ from *obesus* in having the second and third antennal joints black, the slender part of latter less slender; a narrower interocular space in ♂;

no distinct transverse bands of whitish scaling across bases of certain tergites; dark or blackish hind tibiae; a second posterior cell which is about equal in length to discoidal cell; no appendix in discoidal cell; and in having the knobs of halteres darkened above.

It however appears to be nearer *disparilis* described above, but apparently differs from that species in the characters also mentioned above.

Less reliable is the reference of Speiser (p. 79, *Kilimandjaro-Meru Exp.*, ii, 10 (Dipt.), 1910) to a denuded specimen from the Meru region which he provisionally referred to an unspecified species of *Villa*, but which he thought might represent a small specimen of *obesus* and which he subsequently named *Oestranthrax pix* (compare Paramonow's revision, p. 103, *Mem. Acad. d. Sc. de l'Ukraine*, No. 9, 1931). According to Speiser's very brief note this ♀-specimen is black above on the thorax and basally across the bases of all the tergites; traces of scaling on abdomen white; the knees are black; and the base and costal part in wings yellowish brownish. Notwithstanding Speiser's contention that this ♀ is different from Bezzi's *spesierianus*, and bearing in mind the possibility of variation, a comparison of the original material may prove that *pix* is after all only the ♀ of *spesierianus*.

Gen. *Villoestrus* Par.

(Paramonow, p. 93, *Mem. Acad. d. Sc. de l'Ukraine*, No. 9 (*Trav. Mus. Zool. Kiev*, No. 11), 1931; Austen, p. 131, *Bombyliidae of Palestine*, 1937.)

It is remarkable that this genus which Paramonow originally described from a single ♂-specimen obtained near Jerusalem in Palestine, should also be represented in South Africa by a species which is apparently rare or of very short seasonal occurrence and of which the first specimen (a ♀) was taken by a Lepidopterist who was not collecting anything else but butterflies. Subsequently members of the South African Museum obtained not only another ♀ but also the ♂. That representatives of this genus are rare is borne out by the fact that in the extensive Bombyliid-collections before me from all over Southern Africa not a single specimen is represented.

The characters of this genus, as based on the specimens before me and supplemented by the original description of Paramonow and the redescription of Austen, are as follows:

Body generally resembling that of *Oestranthrax* in form and shape and also with much reddish or castaneous brownish. *Head* however distinctly larger than that of *Oestranthrax*, relatively much broader, quite as broad as thorax at level of wings (distinctly narrower in *Oestranthrax*); eyes larger, distinctly much more than twice as high as long at level of indentation, the latter in hind margin slightly less deep and with the upper facets in ♂♂ distinctly much coarser; interocular space on vertex in ♂♂ distinctly narrower, only a very little broader than ocellar tubercle (very much broader than tubercle in *Oestranthrax*), that in

♀♀ however relatively broader, quite 4 times width of tubercle (in *Oestranthrax* usually less than 4 times); frons with a more foveate depression, especially in ♀♀; buccal cavity distinctly very much more reduced than in *Oestranthrax*, represented only by a longitudinal slit, with tumid lips; proboscis and palps either entirely wanting or the former is represented by a mere scale-like vestige protruding through the slit; space between eyes on head below much narrower than in *Oestranthrax*; antennae with joint 1 slightly thicker; joint 3 more gradually broadened basally, the base more ovate flask-shaped or ham-shaped, the entire joint in ♀♀ distinctly stouter than in ♂♂, with the slender part much thicker and base much broader, more ham-shaped. *Vestiture* much like that of *Oestranthrax*, but with slightly more hairs on body above; those in collar, on pleurae, sides of abdomen basally, across tergite 1 and basal half or greater part of 2, at base of venter, on front coxae and on lower hinder parts of front and middle femora distinctly longer, more bushy or shaggy, especially in ♂♂; scales on body on the whole slightly narrower and longer, less wedge-shaped, those on pleurae finer, more hair-like in both sexes; tuft on each side of ovipositor in ♀♀ more developed, denser and longer. *Wings*, though relatively short, slightly stronger and broader, either hyaline for the greater part, only the base and costal border infuscated (♂♂) or infuscated along costal border and band-like across middle (discoidal) part to a variable extent in both sexes or in ♀♀ alone; basal hook slightly more strongly developed than in *Oestranthrax*, broader basally; second vein without a basal stump, less recurved apically; second submarginal cell distinctly longer, its narrowed basal half longer, more recurved and without a stump at base; second and third posterior cells distinctly much longer, the base of latter very much nearer apex of second basal cell and more often without an indication of a stump; basal part of discoidal cell before constriction smaller and shorter than apical part (in *Oestranthrax* usually only a little smaller than apical part); axillary lobe on the whole broader, distinctly more rotundately rounded; squamae on the whole longer, the posterior demarcated part distinctly longer, only a little shorter than basal part (considerably shorter in *Oestranthrax*). *Legs* relatively much shorter and stouter, the front and middle femora, tibiae and tarsi more or less equally long; femora without spinelets or short spines below, but with more numerous, longer and denser hairs; tibiae slightly thicker, especially front ones; basal joint of tarsi, especially front ones, slightly more thickened. *Ovipositor* in ♀♀ with more numerous and longer spines on each side than in *Oestranthrax*.

The genotype species is *Villoestrus uvarovi* Par. from Palestine and the South African representative is the following new species.

Villoestrus dimorphus n. sp.

Body mainly darkened or blackish above and yellowish brown to castaneous brownish below; frons, especially in ♀, scutellum and to a lesser extent rest of head, thorax above and even abdomen above brilliantly shining; greater part of frons, except darkened basal part or half, antennal joints 1 and 2, entire face

and head below, occiput and head behind yellowish reddish or yellowish to orange yellowish, the face and buccal part in ♀ sometimes pale ochreous yellowish; buccal part on each side of slit, especially anteriorly and more especially in ♀, pallid or almost white; antennal joint 3 darker, more brownish or reddish brown, its slender apical part in ♂ more yellowish; eyes very dark blackish brown to slightly purplish brown; humeral tubercle, sides of thorax above, postalar calli, scutellum, pleurae, sides of abdomen (very broadly in ♂), hind margins of tergites 4-7 and venter pale yellowish brownish to castaneous brown to a variable extent, the pleurae and in ♂ the venter being the paler; scutellum and sides of thorax usually more reddish brownish; legs pale yellowish brownish, the subapical part of femora above, bases of tibiae above and slightly more than apical halves of tarsi darkened. *Vestiture* with the hairs on frons, intermixed ones on antennal joints 1 and 2 laterally above in ♀ black; hairs on antennal joints 1 and 2 in ♂, rest of hairs on 1 in ♀ and shortish ones on face in both sexes sericeous white; dense hairs in collar above, on sides of thorax above, in mesopleural and metapleural tufts, on rest of pleurae, on postalar calli, across base of thorax, on disc of thorax and on scutellum posteriorly in ♂, the plumula in both sexes, hairs densely across sides of tergite 1 in ♂, those across sides anteriorly of tergite 1 in ♀, densely across tergite 2 in ♂ and across basal half of same tergite in ♀, the denser and longer ones at base of venter in ♂, across base of sternite 2 in ♀ and on last tergite in ♂ white to frosty white; fine hairs on disc of thorax, on scutellum and densely across apical half of tergite 1 on sides in ♀, sparse and short ones on abdomen above in both sexes, sparse shortish ones across hind margins of sternites 3-7 in ♂, on sternite 1, apical part of 2 and the rest in ♀ (denser and longer posteriorly in ♀), bristly ones apically on front coxae (denser in ♀) and less numerous ones on other coxae very dark blackish brown; hairs on femora mainly whitish in ♂, dark or black in ♀; spicules on tibiae and tarsi and the claws black in both sexes; genital tuft of ♀ sericeous yellow; scaling on greater part of head snow-white, that on basal part of frons, especially in ♀, sparse and dark, the white ones also somewhat sparse or absent on middle part of frons and disc of face, the buccal part and head below entirely bare; scaling on disc of thorax dark or black, shining graphite-like, very dense in ♀, almost absent, finer and sparser in ♂; that on scutellum, especially in ♀, also black; fine, longish, hair-like scales on sides of thorax, pleurae, sternum and coxae, and tuft below halteres snow-white; scaling on abdomen above composed of white and blackish bronzy or graphite-gleaming ones, the white ones arranged as a broadish white band of broadish scales across basal half of tergite 2 in ♀ (denser on sides) and on extreme sides in ♂ and also more or less transversely across bases and sides on extreme sides of the other tergites, but also across hind margins on sides of posterior tergites, except last one; rest of scaling on abdomen black and gleaming dark bronzy, purplish or graphite-like, more concentrated across hind margins of tergites where the scales are also longer and broader; scales on venter also broadish, snow-white, concentrated across hind margins of sternites, much denser in ♀ than in ♂;

scaling on legs also dense and whitish. *Wings* shortish, shining, differently infuscated in the two sexes, mostly vitreous hyaline in ♂, but base, costal cell, slightly more than basal half of marginal cell, anterior basal part and nearly apical half of first basal cell and extreme base of first posterior cell infuscated dark blackish brown and with faint indications of dark spots on cross veins in basal half and on middle cross vein; infuscation in ♀ very dark blackish brown or pitch brown to black, in a striking pattern very much resembling that of ♂ of *uvarovi* as depicted by Austen (fig. 51, p. 132, *Bombyliidae of Palestine*), consisting of a dark base (excluding apical half of squama and the alula), entire costal cell and a broad band extending across and including marginal cell up to opposite end of costal cell, more than basal half of first submarginal cell (to cubital fork), anterior basal part and nearly apical half of first basal cell, nearly basal half of first posterior cell, basal part of second posterior cell, entire discoidal cell (except middle part) and narrow basal part of third posterior cell, base of fourth posterior cell and ending posteriorly as broadish infusions along posterior veins (excepting those of first posterior cell) and even faintly along hind border of fourth posterior cell; entire second basal cell, except opposite base of fourth posterior cell, and middle part of discoidal cell however clear; faint, less-infuscated, narrowish, spot-like areas present at base of marginal cell and before cubital fork in first submarginal cell; veins very dark blackish brown in both sexes; first posterior cell very broadly open; discoidal cell much broadened at about apical third, its lower vein at that level rather markedly bent hindwards; middle cross vein a little before middle of discoidal cell; anal cell much narrowed apically, but narrowly open; base of wings white-scaled above, yellowish brownish or greyish-scaled on basal comb in ♀, more whitish anteriorly in ♂; squamae dark leathery brown in basal half, subopaquely whitish in apical half, fringed with white scales; halteres and their knobs brownish.

From 1 ♂ and 2 ♀♀ (types in the South African Museum and a paratype in the National Museum of Southern Rhodesia).

Length of body: about 16–16½ mm.

Length of wing: about 12–13½ mm.

Locality: South-western Cape: Strandfontein dunes in the Cape Flats near Cape Town (Zinn and Hesse, March 1950) (types); Strandfontein (Dickson, 25 Feb. 1947).

Easily recognized by the striking black pattern in the wings of the ♀ and the white hair on thorax, pleurae and across base of abdomen above, black scaling on abdomen above, etc. Apart from differences in the colour of the hairs and scaling on various parts of the body, this species differs from *uvarovi* in the entire absence of a black cross band in the wings of the ♂, the more dilated discoidal cell and slightly longer buccal slit from which a minute vestige of the proboscis is still protruding scale-like.

A noteworthy feature or peculiarity of both this species, the species of *Oestranthrax* and the new genus described below is the excessive oiliness of the exuda-

tions from the body of the dried and pinned specimens. This oily exudation seems to spoil specimens after a relatively short time and is probably due to accumulated fat as a result of larval development in some food material very rich in fats and oils.

Gen. *Marleyimyia* n. gen.

A solitary ♂-specimen from Durban, collected by the late Mr. H. Bell-Marley, was labelled by Bezzi as *Oestranthrax obesus* (Lw.). In his brief reference to this insect Bezzi states that apart from lacking an appendix projecting into the discoidal cell it is typical in other respects to *obesus*. From a comparison of this specimen with a good series of *Oestranthrax obesus* in the collections before me it is, however, quite evident that it is an entirely different species which shows certain distinct characters which appear to be of sufficient taxonomic value to merit its elevation to a separate generic rank. It seems to occupy an anomalous position, agreeing with *Oestranthrax* in certain respects, but at the same time showing affinities with *Villoestrus*. I have great pleasure in naming this remarkable Bombyliid-genus after and in memory of the late Mr. H. Bell-Marley who collected it and who was a very enthusiastic and observant collector who contributed many interesting specimens to the insect collections of the South African Museum.

From both *Oestranthrax* and *Villoestrus* this new genus differs in the following respects:

Body larger; mesopleuron distinctly much more convexly bulging and prominent. *Head* relative to body much larger, more like that of *Villoestrus*, being quite as broad as across disc of thorax at level of wings; eyes as in *Villoestrus*, more than twice as high as long at level of indentation; facets much coarser, those in upper part in ♂ distinctly coarser than in lower part and coarser than in *Villoestrus*; interocular space on vertex in ♂ much narrower than in *Oestranthrax*, but like that of *Villoestrus*; face slightly less convex and also less so than in latter genus; buccal cavity slightly less reduced than in most species of *Oestranthrax*, but distinctly much more developed than in *Villoestrus* and in form of a broad and deepish depression bounded on each side by somewhat prominent rims or lips; genae very much narrower than in *Oestranthrax* and also narrower than in *Villoestrus*; rudimentary proboscis like that of former, its labellar part however pointed, not ending in two vestigial lobes; palps also very similar; antennae (text-fig. 181, left) more like those of latter genus and joint 3 much more broadened at base than in *Oestranthrax*, its slender part also relatively shorter than in latter and not so long and filiform. *Vestiture* with the hairs and scales on first antennal joints and face distinctly longer and very much and markedly denser than in both the other two genera; hair on thorax above discally and antero-laterally, on pleurae, coxae, in metapleural tuft, on scutellum, first tergite, basal half of tergite 2 and base of venter distinctly very much longer, denser, more shaggy in appearance than in former two genera; hairs on

sides of abdomen also distinctly longer and denser; those on venter markedly dense, much denser and longer than in any other Exoprosopine and having a marked resemblance to the scopa of a gastrilegous bee; scales on face narrowish as in *Villoestrus*, but very much longer; that in form of whitish transverse bands across bases of tergites in narrower bands than in *Oestranthrax*, more like those of *Villoestrus*, but with a more conspicuous band across base of tergite 3, but none across base of 2 as in former genus; rest of scaling on abdomen above dark or blackish, without any yellowish or ochreous ones. *Wings* more like those of *Villoestrus*, with similar venational characters, but not infuscated along costal part or with a dark cross band; second vein slightly less recurved apically than in *Oestranthrax*; second submarginal cell longer and narrower basally; second and third posterior cells much shorter, the latter extending basally to much nearer apex of second basal cell; fourth posterior cell tending to be very broad apically, broader than in the other two genera; anal cell closed apically and with a very short stalk in this unique ♂ at least; basal hook of wings longer, more developed than in either genus, more prong-like; squamae with the apical demarcated part considerably shorter than in *Villoestrus*. *Legs* shorter and stouter than in *Oestranthrax*, more like those of *Villoestrus*, but with much longer hairs on femora; femora, tibiae and tarsi more or less equal in length as in latter genus; femora without any spines or spinelets below; front tibiae with more and denser spicules than in *Oestranthrax*; basal joint of tarsi more thickened than in latter genus; claws without a basal tooth, slightly stouter and more bent down apically than in former two genera. *Hypopygium* of ♂ (text-fig. 181, right) very similar to that of *Oestranthrax* and those of the *leucochila*-section of *Villa*, but aedeagus much shorter, the scoop-like aedeagal process more rounded knob-like apically and the basal strut more slender.

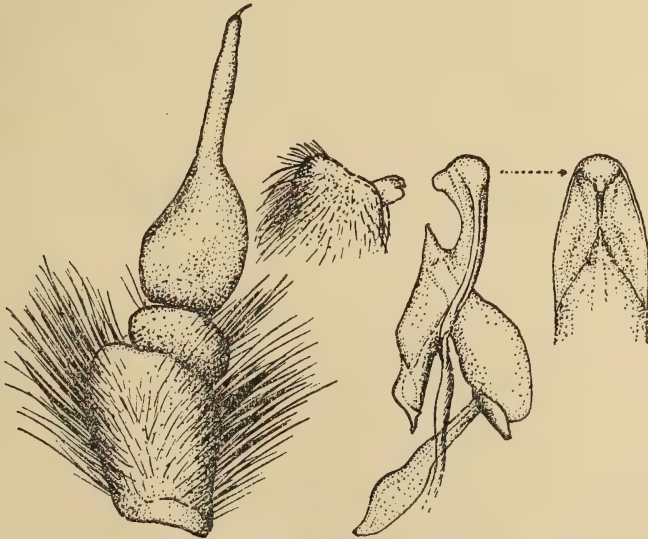
The genotype and only known species is *Marleyimyia natalensis* n. sp.

Marleyimyia natalensis n. sp.

(Syn. = *Oestranthrax obesus* Bezzi, in part, nec Loew, p. 172, *Ann. S. Afr. Mus.*, xviii, 1921.)

Body predominantly yellowish brownish; occipital part, thorax discally above, broad medial discal parts of tergites 1 and 2, tapering to a point on 3 or 4 and to a certain extent metapleurae dark blackish brown or black; basal half of frons also dark; anterior part of frons, face and front part of buccal cavity orange yellowish, the middle of face just below antennae and a streak basally below each antenna however dark; antennae blackish brown, outer lower part of joint 1 and lower part of 2 and extreme base of 3 paler, more reddish; legs brownish or reddish brown, the front femora above and apical parts of hind ones above appearing darker; claws entirely black. *Vestiture* with the dense, shaggy hair on thorax, pleurae, scutellum and first two tergites mainly pale yellowish white; that on propleural part, mesosternal part, lower

part of metapleurae, on coxae and base of venter however distinctly brownish fulvous or tinted velvety brownish; that on disc of thorax and on sides of abdomen gleaming more whitish; hair on basal half of frons blackish brown; intermixed hairs on outer sides of antennal joints 1 and 2 dark like hairs in middle and just below antennae; rest of hairs and scaling on frons, antennae and face gleaming very pale sericeous yellowish to whitish; scales in depressions and on genae however more snow-white like those behind eyes; shorter hairs on rest of abdomen beyond basal half of tergite 2 slightly fulvous brownish across apical part of 2 and across apical parts of 3 and 4, especially on sides, and more yellowish golden from 5 to 7, especially on sides; dense hairs on venter gleaming golden or pale golden yellowish from sternite 5 to apex, dark velvety brownish or blackish brown on 2-4 and paler fulvous brownish at base; dense shaggy hairs on lower posterior part of front femora also blackish brown or fulvous brownish; broadish band of scaling across base of tergite 3 and those narrowly across bases of other tergites white; broadish scales across hind margins of tergites 3-7 very black; rest of scaling on disc of abdomen very dark or blackish brown; scaling on legs gleaming brownish, slightly more whitish on hind femora below. *Wings* greyish or faintly yellowish hyaline; base and costal cell slightly more subopaquely yellowish; base of first vein blackish brown, the rest of vein more yellowish and other veins brownish; squamae brownish, with creamy fringes; scaling on basal comb mostly brownish;



TEXT-FIG. 181. Left: Inner view of right antenna of ♂ *Marleyimyia natalensis* n. gen. et n. sp. Middle top: Side view of apical part of hypopygium of ♂ of same species to show beaked apical joint. Right: Side view of aedeagal apparatus and dorsal view of apical half of hypopygium of ♂ of same species.

second posterior cell much more than half length of discoidal cell; halteres brownish, their knobs also brownish. *Head* with the interocular space in this ♂ at narrowest part on vertex about twice width of smallish ocellar tubercle; antennal joint 3 (text-fig. 181, left) with the broad base ovate, bulb-like and with the slender part subequal in length to broad base. *Hypopygium* of ♂ (text-fig. 181, right) as described for genus.

From a ♂ in the South African Museum.

Length of body: about 17 mm.

Length of wing: about $15\frac{1}{2}$ mm.

Locality: Natal: Sydenham near Durban (Bell-Marley, 3 Oct. 1919).

Superficially this species has some resemblance to certain bees belonging to the genus *Megachile*; the dense golden yellowish hairs on the posterior half of the venter being reminiscent of the ventral scopa of a gastrilegous bee. To this specimen Mr. Bell-Marley attached the following note: 'This fly came out of an old log containing Cossid larvae.'

Gen. *Thyridanthrax* Ost. Sack.

(Osten Sacken, p. 123, *Biol. Amer. Dipt.*, i, 1886; Bezzi, p. 625, *Trans. Ent. Soc. Lond.*, 1911; Bezzi, p. 132, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 192, *The Bombyliidae of the Ethiopian Region*, 1924; Bezzi, p. 227, *Bull. Soc. Roy. Ent. d'Egypte*, viii, 1924; Austen, p. 151, *Bull. Ent. Res.*, xx, 1929; Painter, p. 799, *Ann. Ent. Soc. Amer.*, xxiii, 1930; Painter, pp. 5 and 6, *Journ. Kansas Ent. Soc.*, vi, 1933; Engel, p. 523, *Die Fliegen d. Pal. Reg.*, lief. 105, 1936; Austen, p. 145, *Bombyliidae of Palestine*, 1937.)

(Syn. = *Exhyalanthrax* Becker, p. 44, *Ann. Mus. Nat. Hungar.*, xiv, 1916 (as subgen. of *Villa* Liroy); Syn. = *Hemipenthes* Hesse, nec Loew, p. 174, *Ann. Transv. Mus.*, xvii, 1936.)

All the species of this genus were formerly described as belonging to the genus *Anthrax*. In 1886 Osten Sacken made the first attempt to dissociate certain species belonging to the Palaearctic and American pattern-winged or *fenestratus*-group from the rather unwieldy genus *Anthrax* and established the genus *Thyridanthrax* to contain them. In 1911 (1912), and more comprehensively in 1924, Bezzi extended the scope of this genus so as to include all the Palaearctic and Ethiopian species belonging to the clear-winged group which Becker in 1916 independently assigned to *Exhyalanthrax*, his new subgenus of *Villa*. Previously to this in 1912 Becker (p. 450, *Ann. Mus. Zool. Acad. Imp. St. Petersb.*, xvii) had however referred the genus *Thyridanthrax* s. str. of Osten Sacken as a subgenus of *Hemipenthes* established by Loew in 1869. In this he was followed by Paramonow in 1927 (p. 150, *Encyclop. Entom.*, ii, Dipt., iii, fasc. 4). In 1930 and 1933 Painter in America on the other hand referred both *Thyridanthrax* and

Hemipenthes as subgenera of *Villa*. Since 1912 and 1924 most authors have however followed Bezzi and have referred both pattern-winged and clear-winged species, showing certain constant characters, to Bezzi's emended conception of *Thyridanthrax* s. l. From an examination of the various South African species it is however quite evident that forms belonging to the group showing a fenestrate pattern in the wings differ in certain constant and distinct characters from the group of species having clear wings or wings only partially infuscated. Such group characters as the fenestrate-pattern, presence of three submarginal cells, relatively denser and more shaggy vestiture, longer hairs on sides of face, the much broader interantennal space, the absence of a distinct and conspicuous terminal joint to a slender part of third antennal joint and the row of denser, more contiguous spicules on outer upper part of hind tibiae, and which appear to be constant in the South African group of *Thyridanthrax* s. str., distinguish them sufficiently from the other large group to merit a separate generic status for the latter. Separation of the species into still more separate genera without a comprehensive and comparative study of Palaearctic species at the same time would however only render the confusion greater.

The characters of *Thyridanthrax* s. l. as based on the South African species are as follows:

Body oval or slightly elongate like that of *Anthrax* and *Villa* in appearance, predominantly black in the clear-winged series, but with much yellow on face, scutellum and sides of abdomen in the fenestrate-winged group. *Vestiture* with the hair relatively dense on pleurae and even shaggy or tufty on sides of abdomen in the latter group, but shorter, sparser and less tuft-like on abdomen in former group; hairs on frons always black or very dark, that towards middle above antennae just in front of or on sides of medial depression denser than rest and those around apex of face also dense, shortish, brush-like; prealar and scutellar bristles present, the prealar ones usually stout, bristly hairs in upper part of mesopleural tuft invariably pale and directed upwards; metapleural tuft present; tuft of hairs at base of abdomen on each side pale or white; hypopleuron and part of metapleuron and usually also anterior part of sternopleuron bare; scaling in the form of very fine, hair-like, depressed tomentum, flattened, depressed scales, longer, lanceolate or bat-shaped ones (on sides of abdomen or on posterior part) and fine, longish, hair-like scales on sides of thorax and on pleurae; a patch of elongated, flattened, brilliantly shining, silvery or brassy scales sometimes present on frons in front; silvery or snow-white scales usually present along hind margin of eyes, forming a conspicuous occipital girdle in many species; a conspicuous, contrasting streak of dense white or pale hair-like scales or hairs present on each side of thorax above in all the species belonging to the group without fenestrae in the wings, this streak usually continued as a band of white scales across hind border of scutellum; white scaling on abdomen above usually disposed as transverse bands on sides basally of tergite 2 (rarely right across), across basal half or more of 3, across basal half on sides of 4 (sometimes wanting), across sides or entire base of 6 and covering entire tergite

7 (that on 6 may be broadly interrupted medially and in some species white scaling on this tergite may be confined to a patch in the middle). *Wings* clear hyaline, or only infuscated or tinted at base and along antero-costal part, or more extensively infuscated in more or less basal two-thirds and showing distinct fenestrae or clear window-like spots on cross veins in infuscated part (cf. text-figs. 201 and 204), the infuscated part sometimes divided into cross bands separated by more yellowish patches; wings sometimes clear in ♂♂ and infuscated in ♀♀; basal tooth developed; basal comb well developed; second vein originating opposite or just in front of middle cross vein, usually without a stump, moderately or much recurved apically, sometimes markedly sinuous or contorted; two submarginal cells present in the group without fenestrae in wings and three (or a tendency to form three) in those with fenestrae on cross veins; middle cross vein rarely beyond middle of discoidal cell, often a little farther away from base in ♀♀ than in ♂♂ in cases where there is a sexual difference in wing-infuscation; discoidal cell on the whole broad, its lower vein sinuous or S-curved in most species; first posterior cell either narrowed apically or broadly open and not or scarcely narrowed; third posterior cell markedly long in forms with fenestrae in wings. *Head* large, quite as broad as thorax; eyes large, their hind margin emarginate, showing a distinct, short, bisecting line at indentation, separated above on vertex in both sexes, but usually more broadly in ♀♀ than in ♂♂; occiput with a central foveate depression behind vertex in forms without fenestrae in wings; occipital gap narrow, slit-like, the lobes contiguous; frons gradually broadening anteriorly to just a little beyond middle, then more rapidly diverging, usually with a feeble or shallow central depression at about or just before middle; face always projecting, more often conically or subconically, somewhat sharply pointed in most species, but more rounded or bluntly rounded in some, either moderately produced or sometimes markedly short, usually with an oblique, bare streak below antenna on each side; buccal cavity comparatively long, well developed, always pallid or yellowish; proboscis usually shortish, more often confined to buccal gap, rarely slightly projecting apically, its labellar lobes moderately long in the forms with fenestrae in wings; palps long, slender, not visibly jointed, with fine longish hairs; antennae with joint 1 either a little longer or much longer than joint 2, sometimes markedly short or only as long as 2, usually more produced or thickened on inner side apically; joint 2 transverse, broader than long, both it and joint 1 with hairs which are usually longer on outer upper and lower aspect and sparse or absent below; joint 3 conical, subconical, club-shaped, bulb-shaped, flask- or retort-shaped, the inner or lower part usually more rapidly narrowed from broad base to slender or styler part than outer or upper part, its slender part in forms without fenestrae in wings ending apically in a terminal joint or style of variable length which bears a minute stylet, this terminal joint however indistinct or not visible in forms with fenestrae in wings. *Legs* without any spicules on front tibiae; middle and hind femora with spines below; front ones unarmed below, but in some forms with fine spinelets above, with some fine hairs on outer aspect

of both front and middle femora, longer, denser and more conspicuous in one group; front tarsi modified in both sexes, usually hairy and sometimes slightly compressed apically or in apical part to a variable extent; front claws much reduced and in one species much compressed, connate and with the outer claw shorter than inner one; claws without a conspicuous basal tooth, but with a slight prominence in some species; pulvilli wanting. *Ovipositor* in ♀♀ with a row or half circlet of spines on each side of which the apices are slightly curved. *Last sternite* of ♂♂ (cf. text-figures) which encloses the hypopygium usually with the dorsal margin on each side indented and the dorso-apical angles bluntly rounded or pointed as shown in figures. *Hypopygium* of ♂♂ (cf. text-figures 182–203) usually with a dorsal ridge on each shell-like or clasper-like basal part, this ridge usually hairy, usually projecting freely in the form of a short process posteriorly, the freely projecting part sometimes fused with its neighbour, forming a U-shaped crest on the two basal parts; aedeagus proper usually short, sinuous; aedeagal apparatus always with a conspicuous, projecting, scoop-like, aedeagal process which differs in shape in the various species and is usually provided apically and ventrally on each side with a hooklet or spine (see figures).

This genus differs from *Villa* mainly in having the face distinctly produced either conically or subconically; in having a distinct or deeper foveate depression on occiput behind vertex; no spicules on front tibiae; white scales only on sides basally of tergite 2, rarely continued across discal part; a distinct terminal joint at apex of slender part of antennal joint 3 (in cases where this is indistinct the wings have a fenestrate pattern which is absent in *Villa*); and in having a different type of aedeagal apparatus (cf. text-figures). From the genus *Anthrax* it differs chiefly in having a conically produced face, without dense and long hairs; a different type of third antennal joint of which the terminal joint does not bear a circlet of fine hairs; non-spiculate front tibiae; no pulvilli; distinctly less dense hairs and bristles on body; in not (or only rarely) having transversely arranged brilliantly shining, silvery scales posteriorly on abdomen; and in the different type of wing-infuscation.

As far as their biology is concerned a few species of *Thyridanthrax* (*lloydi* (Aust.), *argentifrons* Aust., *abruptus* (Lw.), *lugens* (Lw.), *brevifacies* n. sp., *transiens* Bezz., *beneficus* Aust., and two new East African species, *alliopterus* and *burtii* (described on pp. 617, 619) are of economic importance in that their larvae develop in the puparia of species of tsetse flies, especially *Glossina morsitans*, the carrier of human and animal Trypanosomes in Africa, and also in other species of Diptera. Other African species probably parasitize species of Diptera, even those Diptera parasitizing Lepidoptera, or parasitic Hymenoptera such as *Braconidae*, or they develop in the egg-packets of various species of locusts like some of their Palaearctic relatives.

Owing to the remarkable uniformity and similarity of the colour pattern and arrangement of the hairs and scaling in species of this genus, as well as the difference in the wing-infuscation between ♂♂ and ♀♀ and individual and

specific variability which certain species show, it is very difficult and sometimes almost impossible to distinguish the various species and to recognize the subtle specific differences which separate them, especially if a long series of any one species be not available. This tendency to vary both sexually and individually and also specifically has caused confusion of species and the redescription of forms, races or varieties of some species under different names by authors who had only a few specimens at their disposal.

Key to the known South African species represented in the collections

1. (a) Wings hyaline or with only the base and costal cell infused or infuscated, or if infuscated in antero-costal part this infuscation less extensive, not extending much beyond basal cross vein of fourth posterior cell and base or extreme base of discoidal cell, never with fenestrae on cross veins in infuscated part; submarginal cells only two in number; third posterior cell relatively shorter, base of its basal vein rarely very near to or approximate to apex of second basal cell; antennal joint 3 ending apically in a distinct and recognizable terminal joint which is sometimes relatively long and which bears a stylet; occiput with a distinct foveate depression; central frontal depression usually very shallow; face entirely or predominantly black; thorax above with a conspicuous streak of dense, contrasting, whitish or snow-white hairs or hair-like scales on each side; hairs on sides of abdomen on the whole less dense, shorter, less shaggy, the tufts of longish, dark or black and pale scales usually more conspicuous. 2 (Group I) (p. 551)
- (b) Wings more extensively infuscated, with a fenestrate pattern, having clear, window-like spots on cross veins, the infuscation extending posteriorly to about or very near or even beyond middle of fourth posterior and discoidal cells or to hind border of wings; submarginal cells sometimes three in number or with a stump at base of upper cubital branch; third posterior cell distinctly much longer, its base nearer to or even approximate to apex of second basal cell; antennal joint 3 usually more elongate-conical, ending apically in a small stylet, a distinct and separately recognizable terminal joint between it and apex of third joint usually not obvious or evident; occiput behind vertex without a foveate depression; central frontal depression deeper, more distinct and, if absent, other characters do not differ; anterior part of frons and entire or greater part and sides of face yellowish; thorax above without a distinct and conspicuous streak of dense, contrasting, snow-white hairs or hair-like scales on sides; hairs on sides of abdomen distinctly denser, longer, more shaggy, and the scales less evident. 68 (Group II) (p. 606)
2. (a) Modified front tarsi not markedly compressed or only so apically, their claws very much reduced, not compressed, not connate, and equally long; front femora with fewer, sparser, less dense and shorter hairs on outer face; spicules in outer upper row on hind tibiae not markedly more numerous or denser or closer together than in rest of rows and scales on same tibiae not tending to be conspicuously feathery; central frontal depression much shallower; hairs on sides of face relatively much shorter and sparser, even in forms with such hairs longer than in others; hairs on sides of abdomen sparser, less tuft-like or shaggy, longish scales being also present and conspicuous among the hairs; hairs on sternal and ventral parts rarely entirely black; white scales on last two tergites in ♂♂ not arranged transversely and usually not conspicuously brilliantly shining silvery; scaling on venter rarely entirely black, usually with some pale ones even if mainly dark; wings, even if entirely hyaline, with the basal comb relatively smaller, third posterior cell relatively much shorter, its base farther away from base of fourth posterior cell, this distance not shorter than base of discoidal cell; first posterior cell relatively broader. 3
- (b) Modified front tarsi distinctly more compressed, their claws relatively less reduced, distinctly compressed, connate, appearing as a single claw, but with outer one shorter than inner one; front femora with denser, more numerous and longer, fine hairs on

outer face; spicules in outer upper row on hind tibiae distinctly much more numerous, much denser and closer together than in rest of rows and scales on same tibiae distinctly much more feathery; central frontal depression deeper, pit-like; hairs on sides of short rounded face relatively much longer and denser; hairs on sides of abdomen much denser, longer, more shaggy and longish scales being less evident or wanting; hairs on entire sternal, lower pleural and ventral parts entirely black, contrasting with the chrome or orange yellowish ones in collar and upper pleural parts; white scales on last two tergites in ♂ arranged transversely and brilliantly silvery white; scaling on venter and legs entirely dark or black; wings entirely hyaline, only base and costal cell tinted subopaquely yellowish, with the basal comb large, third posterior cell much longer, its base very near to base of fourth posterior cell, this distance shorter than base of discoidal cell; first posterior cell relatively and markedly narrower.

- ♂ ♀ *lutulentus* Bezz. (p. 604)
3. (a) Wings entirely hyaline or only with the extreme base, base alone, or base and costal cell darker or infused subopaquely yellowish whitish, yellowish, yellowish brownish, reddish brownish or darker blackish brown to black, the entire or greater part of first basal cell or both basal cells, anal cell and base of marginal cell not infused or infuscated; indications of spots at bases of second and third veins, on middle cross vein, at base of discoidal cell and on basal cross vein of fourth posterior cell either absent or only feebly indicated. 4
- (b) Wings with more extensive basal and antero-costal infuscation, the entire first basal cell or greater parts of or both basal cells, or also basal part of or even basal half of marginal cell, base or basal half of anal cell and sometimes to a variable extent even bases of axillary and discoidal cells tinged or even darkly infuscated; spot-like indications or distinct spots on these cross veins more evident and larger. 22
4. (a) Scaling on body above, especially abdomen, more uniformly dull creamy yellowish, dull greyish yellowish, buff yellowish or greyish whitish; that behind eyes and on occiput either not in form of a contrasting snow-white circler or this circler is pale creamy or greyish yellowish, not silvery or white; streak of hair-like scales on sides of thorax duller, only dirty whitish or at most cream-coloured or yellowish white, not strikingly snow-white; distinct snow-white or silvery white scaling on abdomen above only evident or contrastingly visible on extreme sides basally of tergites 2-6 and across 7 or base of 7; black scaling on abdomen above either relatively much reduced or less extensive, present only discally on each side near base of tergite 2, across hind margin or hinder half or even greater part of 2 and absent or present to a much lesser extent on rest of tergites; cross veins in wings without even feeble indications of small spot-like infusions. 5
- (b) Scaling on body above, especially abdomen, not so uniformly creamy yellowish or buff yellowish; that behind eyes and on occiput usually in form of a contrasting and conspicuous snow-white or silvery white circler; streak on sides of thorax and also scaling across hind margin of scutellum conspicuously and contrastingly snow-white; snow-white scaling on abdomen above distinctly more extensive, more conspicuous and more contrasting across sides of base of tergite 2, across entire base or basal half of 3, base on sides of 4 and usually entirely or extensively on entire 6 and 7 and sometimes even across 1; black scaling on abdomen above distinctly more extensive on tergal surfaces not occupied by white or ochreous ones; cross veins in basal half of wings more often with more distinct or even conspicuous indications of spots or spot-like infusions and, if without such spots, scaling on abdomen does not differ. 6
5. (a) Face markedly short, more bluntly rounded, with relatively longer and denser hairs; hairs and scales on pleural parts with more pale ones intermixed, especially in mesopleural and propleural tufts; hairs at base of venter and also on rest of venter relatively longer, denser and more developed; scaling on venter entirely or mainly pale or buff yellowish; postalar bristles entirely pallid; black scaling on tergite 2 confined to sides discally near base and to hind margin; scaling on legs yellowish; wings vitreous hyaline, the base and costal cell clear, subpellucid; axillary lobe slightly less developed, less rounded, only about as broad as or narrower than anal cell; middle cross vein at about or a little more than basal third of discoidal cell; front tarsi slightly thicker, their claws distinctly less reduced. ♂ ♀ *lloydii* (Aust.) (p. 551)

- (b) Face more conical, distinctly longer, with fewer and shorter hairs; hairs and scales on pleural parts, upper part of mesopleural and metapleural tufts entirely dark or black; hairs on venter, even basally, very much shorter, scarcely evident or absent; scaling on venter entirely very dark or black; postalar bristles black; black scaling on tergite 2 more extensive, occupying greater part of segment; scaling on legs mainly dark or black; wings with a feeble, but distinct, greyish tint, the base and costal cell more subopaquely yellowish brownish; axillary lobe distinctly more developed, more lobately rounded, much broader than anal cell; middle cross vein nearer base of discoidal cell, at about a little less than basal third or even at basal fourth of this cell; front tarsi relatively more slender, their claws more reduced, minute.
- ♂ *atriventris* n. sp. (p. 553)
6. (a) Anterior part of frons with a conspicuous patch of dense white or very pale, flattened and usually elongated scales, extending between and around bases of antennae, which are usually brilliantly glittering or shining silvery, brassy or bronzy, and which even if not very brilliant are usually enlarged or very much longer than rest of pale scales or brilliant scales on frons and face, especially in ♂♂. 7
- (b) Anterior part of frons without a dense patch of modified and elongated pale or white brilliantly glittering or shining silvery, brassy or bronzy scales, the scaling on frons and face even if white or very pale or slightly gleaming not brilliantly glittering and not distinctly longer or more concentrated anteriorly than on rest of frons and face, even in ♂♂. 14
7. (a) Patch of dense pale scaling on anterior part of frons and also on face distinctly more brilliantly glittering silvery, brassy or bronzy; small spot-like indications on cross veins in basal half of wings tending to be more evident or more distinct and, if not, scaling on frons at least brilliantly glittering. 8
- (b) Patch of dense pale scaling on anterior part of frons and on face distinctly duller, only slightly gleaming snow-white or cretaceous white, not brilliantly glittering or shining; small spot-like infusions on cross veins scarcely or not evident. 12
8. (a) Base and costal cell in wings much paler, either almost clear subpellucid or only faintly subopaquely whitish or yellowish or pale yellowish reddish; antennal joints 1 and 2 usually darker or black and, if pale reddish, base and costal cell much paler. 9
- (b) Base, or greater part of base at least, and sometimes also costal cell distinctly darker, more brownish, dark reddish brownish, blackish brown to almost black; antennal joints 1 and 2 light reddish. 11
9. (a) Hairs on propleural, mesopleural and pleural parts, in lower part of metapleural tuft and on coxae entirely or predominantly very dark blackish brown or black, only upper part of mesopleural tuft straw-coloured or whitish and upper part of metapleural tuft whitish; scaling on abdomen above, other than usual bands of white ones, with more dark or black ones; sides of abdomen with more extensive black hairs; hairs on antennae and on face distinctly longer and denser; face more bluntly rounded, relatively shorter; claws of front tarsi slightly less reduced. ♂ *argyrolophus* n. sp. (p. 557)
- (b) Hairs on propleural and pleural parts and on coxae distinctly paler, more yellowish or fulvous or fulvous brownish and lower part of metapleural tuft either white like upper part or only slightly fulvous; scaling on abdomen above, other than white ones, also with other pale or ochreous ones, or at least with fewer black ones; sides of abdomen with fewer black hairs and, if with much black hair, those on pleurae not blackish; hairs on antennae and face distinctly shorter, less dense; face relatively longer, more conical and pointed apically; claws of front tarsi minute, more reduced. 10
10. (a) Patch of pale scales on frons and those on face glittering or shining more brassy, bronzy or golden yellowish; scaling on body above, especially abdomen and other than white bands, with more and deeper ochreous yellowish to orange yellowish ones and with fewer dark ones; that on venter mainly deep ochreous yellowish; scaling on legs mainly yellowish; hairs on pleurae deeper yellowish or more fulvous brownish; hairs on hind coxae usually gleaming paler; antennal joints 1 and 2 often more light reddish; terminal joint of antennal joint 3 slightly longer, quite as long as joint 2; legs more brownish or dark brown; spicules in outer upper row on hind tibiae not or scarcely

more numerous than in rest of rows; base of wings and sometimes entire costal cell and to a variable extent upper basal part of first basal cell tinted more subopaquely yellowish or reddish brownish; cross veins in basal half with distinct or more distinct indications of spot-like infusions, especially in ♀.

♂ ♀ *leucoproctus* (Lw.) (p. 558)

- (b) Patch of pale scales on frons and those on face distinctly glittering brilliantly silvery white; scaling on body above, especially abdomen and other than white ones, with fewer and paler yellowish or more greyish yellowish ones and apparently also with more dark ones; that on venter mainly snow-white; that on legs mainly dark, gleaming graphite-like; hairs on pleurae more straw-coloured yellowish; hairs on coxae mainly dark or with more dark ones; antennae usually black; terminal joint of antennal joint 3 shorter, shorter or much shorter than joint 2; legs on the whole darker or black; spicules in outer upper row on hind tibiae distinctly closer together, more numerous; base and costal cell as well as entire first basal cell subpellucid or more whitish; cross veins without any indications of distinct spot-like infusions.

♂ ♀ *phileremus* n. sp. (p. 561)

11. (a) Scaling on body above, especially abdomen and other than bands of white ones, with more extensive and deeper ochreous yellowish to orange yellowish ones and less extensive dark ones; that on venter with more numerous yellowish ones; patch of pale scales on frons shining slightly more bronzy or brassy or even golden and those on face also more brassy or golden; hairs on pleural parts slightly paler fulvous or more orange fulvous and with relatively fewer dark chocolate-brownish ones on mesopleuron and in propleural and prosternal tufts; knobs of halteres pale, almost white; base and costal cell in wings subopaquely yellowish red or reddish brown; veins more reddish; first posterior cell more broadly open apically; discoidal cell more acute apically; legs slightly paler, more reddish brown; integument of body tending to be cinnamon-brownish or with a cinnamon-brownish pruinescence.

♂ ♀ form of *leucoproctus* (Lw.) (p. 560)

- (b) Scaling on body above, especially abdomen and other than white bands, with less extensive deep ochreous ones (only at base) but paler, more buff yellowish or greyish yellow ones (posteriorly) and more extensive dark ones; that on venter mainly white or with more white ones; patch of pale scales on frons shining more silvery white and scales on face darker, gleaming more bronzy brownish in certain lights; hairs on pleurae more fulvous brownish, with more numerous black ones on mesopleuron, propleural and prosternal parts; knobs of halteres brownish; base of wings dark brown or blackish brown and costal cell yellowish brownish; veins darker; first posterior cell more sub-spindle-shaped, slightly more narrowed apically; discoidal cell slightly more obtuse apically; legs darker, darker brownish, blackish brown or with black femora; integument of body more black.

♂ *anisospilus* n. sp. (p. 562)

12. (a) Hairs on prosternal part, in propleural tuft, on rest of pleurae and on coxae with distinctly more numerous black or dark ones among the darker fulvous or more brownish fulvous ones, or entirely dark; upper part of mesopleural tuft and collar above more straw-coloured yellowish or yellowish white; scales on body above and on venter slightly broader and shorter, the pale or white ones on abdomen posteriorly distinctly much broader; hairs on abdomen above, on sides and on venter shorter and sparser; those on venter dark posteriorly; pale scaling on face (along middle) dense and snow-white like dense ones on frons anteriorly; first posterior cell in wings scarcely or not narrowed apically, very broadly open. 13

- (b) Hairs on pleurae paler brownish fulvous, with fewer dark ones on propleural, prosternal and mesopleural parts, with some whitish intermixed ones also in propleural tuft and on pteropleuron; upper part of mesopleural tuft, humeral hairs and collar above white, the antero-upper part of mesopleural tuft and intermixed bristly hairs on notopleural part fulvous; scales on body above, especially abdomen, and on venter distinctly narrower, longer and denser, even those posteriorly narrower, and those on sides denser and longer; hairs on abdomen above, on sides and on venter distinctly longer and denser; those on venter entirely pale or whitish in ♂; pale scaling on face

more greyish yellowish, not snow-white like dense ones on frons; first posterior cell distinctly more narrowed apically, more sub-spindle-shaped.

♂ ♀ (especially ♂) *niveifrons* n. sp. (p. 567)

13. (a) White scaling on last two tergites conspicuously dense, gleaming distinctly silvery and covering both tergites entirely; pale scaling on sides of tergite 1 with slightly more yellowish or yellowish white ones; pale scaling on body above, other than white ones, yellowish to ochreous yellowish; white scales in patch on frons more snow-white, denser and extending densely down middle of face; knobs of halteres more dirty yellowish to brownish or brown; spicules on hind tibiae tending to be fewer.
♂ *uroganus* n. sp. (p. 564)
- (b) White scaling on last two tergites duller or only snow-white, not shining silvery and not occupying the tergites entirely, some dark ones being present discally and apically on tergite 6; pale scaling on sides of tergite 1 conspicuously snow-white; pale scaling on body above, other than white bands, paler, greyish yellowish to yellowish white; white scales in patch on frons appearing more greyish whitish and duller, less dense on face basally above; knobs of halteres paler, pallid or almost white; spicules on hind tibiae tending to be more numerous. ♂ form of *cidarellus* n. sp. (p. 566)
14. (a) Middle cross vein in wings much or very much before middle of discoidal cell, either at less than or at about basal third of latter; apical part of second vein and upper cubital branch less conspicuously sinuous, the forward bend in former and forward bend at base of latter less pronounced and, if rather sinuous, middle cross vein at about basal third of discoidal cell. 15
- (b) Middle cross vein nearer middle or at least distinctly much beyond basal third of discoidal cell; apical part of second vein and upper cubital branch rather conspicuously sinuous or contorted, the forward bend in former and basal bend in latter markedly pronounced, sometimes sharply so and, if not much pronounced, middle cross vein at least beyond basal third of discoidal cell. 21
15. (a) Hairs on pleural parts on the whole paler fulvous or paler yellowish or, if dark in parts, with an admixture of paler hairs and hair-like scales, with distinctly fewer dark or black ones on prosternal, propleural and mesopleural parts; white scaling on sides of tergite 4 more extensively developed, not confined only to extreme sides; spicules in outer upper row on hind tibiae distinctly denser and more numerous. 16
- (b) Hairs on pleural parts darker, either deep orange to brownish fulvous, dark velvety or chocolate-brownish or almost entirely dark, with distinctly more numerous or even entirely dark hairs on prosternal, propleural and mesopleural parts; white scaling on tergite 4 usually more reduced and, if present, confined to extreme sides; spicules in outer upper row on hind tibiae distinctly fewer and sparser and, if dense, hairs on pleural parts mainly dark. 17
16. (a) Scales on body, especially abdomen above and below, on the whole finer, narrower, more slender and longer, more sub-hair-like; hairs and scales on sides of abdomen relatively longer and denser; hairs in collar above, upper part of mesopleural tuft and tuft of fine hair-like scales just below wing-base snow-white, with an admixture of luteous bristly hairs in collar behind, in antero-upper part of mesopleural tuft and on notopleural part in front of wing-bases; scales on frons snow-white in ♂, greyish white or even greyish yellow in ♀, without any black ones intermixed; base of wings slightly darker than costal cell and first basal cell in ♀ less tinged; spot-like infusions on cross veins in basal half of wings not or scarcely indicated; interocular space on vertex in ♀ narrower, only about $2\frac{1}{2}$ times width of ocellar tubercle.
♂ ♀ (especially ♀) *niveifrons* n. sp. (p. 567)
- (b) Scales on body, especially abdomen above and below, relatively broader and shorter, less hair-like; hairs and scales on sides of abdomen relatively shorter and sparser; hairs in collar above and upper part of mesopleural tuft and tuft of fine hair-like scales just below wing-base distinctly more yellowish, without luteous bristles in collar behind or on notopleural part; scales on frons in ♀ gleaming slightly more greyish or bronzy yellowish and also with some black ones intermixed anteriorly; base and costal cell both equally subopaquely yellowish and with first basal cell also suffused to

a variable extent; spot-like infusions on cross veins more evident and distinct; interocular space on vertex in ♀ distinctly broader, quite or nearly 3 times width of tubercle.

♀ *zinnii* n. sp. (p. 568)

17. (a) Base and costal cell in wings either much paler, almost subpellucid or subopaquely yellowish brownish or base only is dark or brownish or blackish brown and costal cell paler, and first basal cell entirely clear or less infused in basal half and both second basal and anal cells entirely clear, even at extreme base; costal cell normally broad; spots on cross veins before middle of wings not even indicated or more feebly indicated; squamae paler, more whitish; knobs of halteres usually paler, almost white and, if brownish, base and costal cell less dark; scutellum entirely black; black scaling on abdomen above less extensive, the pale ones, other than white ones, being more extensive. 18
- (b) Base, costal cell and either anterior half of basal half or entire basal half of first basal cell and extreme bases of second basal and anal cells more or less uniformly dark blackish brown, the costal cell not or scarcely less dark than base; costal cell relatively broadish; spots on middle cross vein, base of second vein, near base of third vein and at base of discoidal cell tending to be distinctly more conspicuous; squamae brownish; knobs of halteres brownish; hind border of scutellum reddish to a variable extent; black scaling on abdomen above relatively more extensive.
♂ form of *viduatus* (Lw.) (p. 594)
18. (a) Hairs on pleural parts mainly orange fulvous or orange golden, with fewer dark or blackish ones on mesopleuron, propleural and prosternal parts; scaling on body above, other than snow-white ones and dark ones (across hind margins of tergites 2 and 3 and on sides of hind margins of 4 and 5), mainly deep ochreous yellow to orange yellow; scaling on venter ochreous yellow; scaling on frons and face yellowish to golden yellowish, without any black ones; base and costal cell in wings much paler, only very feebly subopaquely yellowish, almost subpellucid; discoidal cell slightly narrower, more acute apically; first posterior cell slightly more narrowed apically; terminal joint of antennal joint 3 relatively shorter, scarcely longer than joint 2; wings in both sexes entirely hyaline. ♂ ♀ *salutaris* Aust. (p. 556)
- (b) Hairs on pleural parts darker, either dark chocolate-brownish, dark brownish fulvous to black, with more numerous dark or black ones on prosternal, propleural and mesopleural parts, sometimes entirely black; scaling on body above, especially abdomen and other than white scales, not entirely deep orange or ochreous yellow, many or most of them paler yellowish and either with extensive black scaling across greater part of tergite 2 or with more extensive dark ones across hind margins of or on tergites 2-4 (or 5); scaling on venter either greyish whitish, white, or very dark or even black; base of wings at least distinctly darker, more brownish, reddish brownish, blackish brown to black; discoidal cell usually broader, more subtruncate apically; first posterior cell not or scarcely narrowed apically, very broadly open; terminal joint of antennal joint 3 usually longer than joint 2, sometimes very much longer and styliform and, if not longer, other characters do not differ; wings in ♀♀ with more infuscation than in ♂♂ (♀♀ in other sections of key). 19
19. (a) Pale scaling on body above not tending to be uniformly dull greyish whitish or yellowish; that behind eyes in form of a contrasting girdle or circum-occipital band of snow-white scales; that in streak on sides of thorax and across hind border of scutellum and across base on sides of tergite 2, across at least basal half of 3, across base on sides of 4 and across 6 and 7 contrastingly and conspicuously snow-white or even silvery whitish; hairs on venter or at least those basally distinctly longer, more evident or conspicuous; scaling on venter greyish whitish to white; wings clearer vitreous hyaline; axillary lobe slightly less developed, relatively shorter, less rounded and usually narrower or much narrower than anal cell; terminal joint of antennal 3 distinctly much longer, much or very much longer than joint 2, joint 3 itself less conical, more rapidly broadened bulb-like basally; bisecting line in eyes more distinct and longer. 20
- (b) Pale scaling on body above more uniformly dull greyish yellowish or greyish whitish; that behind eyes and on occiput not concentrated in form of a snow-white girdle; that in streak on sides of thorax duller or only dirty whitish or more yellowish white,

distinct whitish scaling only evident on extreme sides across base of tergite 2, across extreme sides basally of 3 and 4 and across sides of 6 and on entire 7 and these bands not conspicuously contrasting; hairs on venter, even basally, distinctly very much shorter, scarcely evident or even absent; scaling on venter entirely very dark or black; wings with a feeble, but distinct, greyish tint; axillary lobe distinctly more developed, longer, more lobately rounded and much broader than anal cell; terminal joint of antennal joint 3 distinctly much shorter, scarcely or only a little longer than joint 2, the joint itself relatively more conical, less rapidly narrowed below from broad base; bisecting line in eyes indistinct and shorter. . . . ♂ *atriventris* n. sp. (p. 553)

20. (a) Middle cross vein in wings at about or at least at not less than basal third of discoidal cell; knobs of halteres paler, very pale yellowish to almost white; antennal joint 3 with a distinctly longer slender part and with a longer terminal joint, the joint itself thus more club-shaped; pale or whitish scales on frons relatively narrower and longer and with more dark ones intermixed on frons anteriorly; scaling on abdomen above, other than white and black ones, with more extensive deep ochreous or orange yellow ones across tergites 1-6 especially; scaling on venter with distinctly more pale, whitish or yellowish ones; hairs on pleurae either brownish fulvous, chocolate- to blackish brown; those at base of venter longer, denser and more whitish; slightly larger form, about 4-7 mm. long, with a wing-length of about 4-7 mm.

. . . . ♂ *abruptoides* n. sp. (p. 574)

- (b) Middle cross vein distinctly nearer base of discoidal cell, at a little less than basal third or at basal fourth of this cell; knobs of halteres darker, more brownish or brown-antennal joint 3 with its slender part distinctly much shorter, the joint more flask-shaped or bellows-shaped, its terminal joint relatively shorter; whitish or greyish white scales on frons relatively broader and shorter, without any or much fewer black ones intermixed anteriorly; scaling on abdomen, other than white and black ones, with less extensive yellowish ones and these not so deep orange yellowish, and with slightly more extensive black ones on tergites; scaling on venter with fewer pale and more dark ones; hairs on pleurae on the whole darker, more black or almost entirely black; those at base of venter sparser, relatively shorter and darker, or at least less white; smaller form, about 3½-4½ mm. long, with a wing-length of about 3½-4½ mm.

. . . . ♂ *cidarellus* n. sp. (p. 564)

21. (a) Hind border of scutellum tending to be reddish brown or ferruginous to a variable extent; base of wings, including alula, costal cell and to a variable but greater extent basal half of first basal cell, more uniformly infuscated dark blackish brown, or at least costal cell is broadish and not hyaline or almost hyaline; spot-like infusions on cross veins in basal half distinctly more evident; apical part of second vein and upper cubital branch only slightly sinuous, forward bend in the former and at base of latter more normal, usually less pronounced and, if rather prominent, costal cell is broadish and infused; upper vein of discoidal cell less convexly rounded apically; first posterior cell less narrowed apically, less sub-spindle-shaped; knobs of halteres more brownish; scales on abdomen above with the white ones, especially on sides in the white bands and also posteriorly, relatively narrower, more slender and also with more extensive black ones or at least fewer pale, yellowish, ochreous or orange ones across hind margins of tergites 3-6; scaling on legs on the whole darker or with more dark ones if not mainly dark. . . . ♂ form of *viduatus* (Lw.) (p. 594)

- (b) Scutellum entirely black; base of wings dark brownish, blackish brown to black, the alula and especially costal cell (anteriorly) distinctly less tinged or clearer, the latter usually almost hyaline; spot-like infusions on cross veins not or scarcely indicated; apical part of second vein and upper cubital branch markedly and conspicuously sinuous or contorted, forward bend in former very prominent, sometimes almost subangular and that at base of latter vein markedly rounded; upper vein of discoidal cell usually distinctly more convexly rounded apically; first posterior cell distinctly more narrowed apically, more sub-spindle-shaped; knobs of halteres usually paler, more whitish; scales on abdomen above with the white ones, especially on sides in white bands, relatively broader, less linear and usually with more extensive pale, yellowish, ochreous or orange yellowish ones across hinder parts of tergites 3-6 and also

on disc of 2; scaling on legs usually pale, more yellowish or ochreous or with more yellowish ones. . . . ♂ *abruptus* (Lw.) (= *lineus* (Lw.)) and forms of it (p. 569)

22. (a) Infuscation in wings less extensive and, apart from base and costal cell, confined to and occupying only greater part of or entire first basal cell and base of marginal cell to a variable extent up to base of second vein, the greater part or at least apical two-thirds or even entire second basal cell and bases of anal and axillary cells being clear or hyaline like rest of wings. . . . 23
- (b) Infuscation distinctly more extensive and, apart from base and costal cell and first basal cell, also occupying base of marginal cell to a variable extent up to or beyond base of second vein, more than basal half of or greater part of or entire second basal cell, much of the base of anal cell to a variable extent and even extreme base of axillary lobe or even base of discoidal cell. . . . 35
23. (a) Second basal cell in wings entirely hyaline and entire anal cell also clear. . . . 24
- (b) Second basal cell infuscated or infused at base or to at least a third or more of its base and extreme base of anal cell also infused to a variable extent. . . . 27
24. (a) Pale scaling on body above not tending to be uniformly dull greyish whitish or yellowish; that on head in front glittering or brightly shining silvery, brassy or bronzy; that behind eyes in form of a contrasting circum-occipital snow-white girdle; that in streak on each side of thorax above and across hind border of scutellum and across base on sides of tergite 2, across at least basal half of 3, across base on extreme sides of 4 and across 6 and 7 conspicuously and contrastingly snow-white or sometimes even silvery whitish; hairs on pleurae on the whole paler or fulvous and, if dark or more chocolate or brownish fulvous, with more pale hairs on propleural and prosternal parts; hairs on venter or at least basally distinctly longer; scaling on venter paler, whitish, yellowish or ochreous; wings clearer vitreous hyaline, the base of marginal cell clear or clearer than infused part of first basal cell; spot-like infusions on cross veins more distinct or even conspicuous; first posterior cell more narrowed apically; discoidal cell relatively broader, less parallel-sided. . . . 25
- (b) Pale scaling on body above more uniformly dull greyish yellowish or greyish whitish; that on head in front duller, not glittering; that behind eyes not concentrated in form of a contrasting snow-white girdle; that in streak on sides of thorax duller, dirty whitish or yellowish white; distinct snow-white scaling on abdomen only evident on extreme sides across base of tergite 2, across extreme sides basally of 3 and 4 and across sides of 6 and entire 7 and these not conspicuously contrasting; hairs on pleurae, excepting only upper part of mesopleural tuft, entirely blackish brown or black; hairs on venter, even basally, distinctly very much shorter and scarcely evident; scaling on venter very dark or entirely blackish; wings with a feeble, but distinct, greyish tint, the base of marginal cell also tinged smoky brownish or greyish like first basal cell; spot-like infusions on cross veins fainter, less evident; first posterior cell less narrowed apically; discoidal cell relatively narrower, more parallel-sided. . . . ♀ *atriventris* n. sp. (p. 553)
25. (a) Base, costal cell and first basal cell (entirely or to beyond half) paler, more subopaquely pale yellowish brownish or reddish brown; spots on cross veins smaller; knobs of halteres very pale yellowish or whitish; hairs on pleurae paler, more fulvous yellowish and with fewer dark or black ones on mesopleuron, in propleural tuft and on prosternal part; hairs in collar above and upper part of mesopleural tuft more yellowish; pale scaling on frons and face shining more brassy or bronzy; tergite 4 with more white scaling on sides; scaling on legs with more pale or yellowish ones. . . . 26
- (b) Base, costal cell and slightly more than basal half of first basal cell darker, more blackish brown, the base even almost black; spots on cross veins distinctly larger, more conspicuous; knobs of halteres brownish; hairs on pleurae darker, more fulvous brownish or velvety brownish and with distinctly more numerous black hairs on mesopleuron and in anterior parts of propleural and prosternal tufts; hairs in collar and upper part of mesopleural tuft more whitish or white; pale scaling on frons and on face on the whole shining more silvery white; tergite 4 without any or with fewer white scales, only on extreme sides; scaling on legs with much or mainly dark ones. . . . ♀ *anisospilus* n. sp. (p. 562)

26. (a) Integument of body more cinnamon-brownish or with cinnamon-brownish pruinescence; hind margin of scutellum and hind margins of tergites, especially posteriorly, and those of sternites more broadly reddish; pleurae and body below more reddish or cinnamon-brownish; legs reddish brownish; pale scaling on body above, other than white ones, more ochreous brownish; scaling on venter mainly ochreous to ochreous brownish; base and costal cell and first basal cell in wings more reddish brownish and spot-like infusions on cross veins more distinct; terminal joint of antennal joint 3 relatively shorter, scarcely or only about as long as joint 2.
 ♂ ♀ (especially ♀) form of *leucoproctus* (Lw.) (p. 560)
- (b) Integument of body more black; hind margin of scutellum sometimes slightly reddish, but hind margins of tergites and sternites not reddish; pleurae darker blackish brown or black, with only sutural parts sometimes reddish; legs much darker, very dark or almost black; pale scaling on body above, other than white ones, deep ochreous only basally on abdomen above, otherwise paler yellowish, creamy or more whitish; scaling on venter more greyish whitish or white; base, costal cell and first basal cell more subopaquely yellowish or pale yellowish brown and spot-like infusions on cross veins fainter, less distinct; terminal joint of antennal joint 3 longer, longer than joint 2.
 ♀ *zinnii* n. sp. (p. 568)
27. (a) Hairs on pleurae darker, with more numerous or mainly dark or black ones in propleural and prosternal tufts or at least with much fewer pale ones in these tufts and also with more numerous black or dark ones on mesopleuron; white scaling on tergite 4 slightly less extensive, confined to extreme sides; scutellum, sides of abdomen and hind margins of tergites entirely black or, if hind margin of scutellum is reddish, hairs on pleurae mainly dark; legs darker, mainly or entirely dark blackish brown or blackish and, if more brownish, other characters do not differ; costal cell usually less strongly developed and, if broadish, other characters do not differ. 22
- (b) Hairs on pleurae either on the whole paler or with at least more yellowish or fulvous ones in propleural and prosternal tufts and fewer dark ones on mesopleuron, the pale or yellowish hairs in upper part of latter being more numerous or more extensive; white scaling on sides of tergite 4 relatively more extensive, occupying more of sides; hinder part or half or even greater part of scutellum, sides of abdomen from tergite 8 to a variable extent and hind margins of posterior tergites or even entire posterior tergites distinctly reddish or reddish brownish; legs pale yellowish brownish or reddish brown; costal cell rather strongly developed, relatively broader. 33
28. (a) Scutellum entirely black; antennal joint 3 either more pear- or ham-shaped, its slender part short or, if latter be longish, its terminal joint is short, not longer than antennal joint 2; hairs in collar above, in upper part of mesopleural tuft and in upper part of metapleural tuft more straw-coloured or whitish; black hairs behind collar finer, shorter and less conspicuous; hairs and scales on sides of abdomen very much shorter, less dense and those on venter also much shorter, sparser; pale scaling on abdomen above, other than white ones, less deeply yellowish, paler ochreous yellowish, greyish yellowish or with more extensive black ones; wings usually more rounded apically, the costal cell on the whole less strongly developed, narrower and, if broadish, other characters do not differ; second vein more sinuous, its forward bend apically more prominent; discoidal cell more subtruncate apically, more acute basally; legs with either much or more pale scaling; hind femora with fewer spines below and hind tibiae with fewer and sparser spicules in outer upper row. 31
- (b) Hind margin or border of scutellum reddish brown or ferruginous to a variable extent and, if entirely black, following characters present; antennal joint 3 either more bulb- or club-shaped, more rapidly bulbular basally below, or the joint is more conical and more gradually narrowed from bulbular base, its slender part relatively longer and its terminal joint usually much longer, much longer than joint 2, rarely shorter; hairs in collar and upper part of mesopleural tuft and in greater part of metapleural tuft more or deeper yellowish to even more orange yellowish and, if whitish, third antennal joint is more conical; black hairs behind collar usually longer, denser and more conspicuous; hairs and scales on sides of abdomen distinctly longer, denser, more shaggy and those on venter also longer and denser; pale scaling on abdomen above, other than white

ones, deeper ochreous to orange yellowish; wings more pointed apically and costal cell more strongly developed, broader; second vein less sinuous, its forward bend less prominent and, if more, other characters do not differ; discoidal cell more subacute or acute apically and more obtuse basally; legs entirely dark-scaled or with more dark ones and, if pale-scaled, scaling on abdomen deeper ochreous; hind femora usually with more spines below and hind tibiae with more numerous and denser spicules above.

29. (a) Face distinctly longer, slightly or much more pointed apically, quite or only a little less than half length of frons (from midway between antennae to ocellar tubercle); interocular space on vertex in ♂ distinctly broader, quite or even a little more than twice width of ocellar tubercle; terminal joint of antennal joint 3 longer, distinctly much longer than joint 2; legs darker or black, dark or black-scaled; middle cross vein in wings at about or scarcely before basal third of discoidal cell; second vein with forward bend near apex tending to be less pronounced; clearer or yellowish spot at about middle of first basal cell larger; knobs of halteres darker, brownish. . . . 29
- (b) Face distinctly shorter, more bluntly protuberant, distinctly less than half as long as frons; interocular space on vertex in ♂ distinctly narrower, only a little wider than ocellar tubercle; terminal joint of antennal joint 3 shorter, only about or scarcely longer than joint 2; legs paler, more brownish or reddish brown, more pale-scaled; middle cross vein nearer basal fourth of discoidal cell; second vein with the forward bend in apical part more pronounced; yellowish spot in middle of first basal cell much smaller; knobs of halteres paler, pale yellowish. . . . ♂ *beneficus* Aust. (p. 585)
30. (a) Antennal joint 3 distinctly more bulb-shaped basally, much more rapidly broadened bulb-like or bulging basally below, its slender part thinner, more slender and well demarcated and its terminal joint very much longer, at least more than half length of slender part; frons with a distinct and often conspicuous foveate depression at about middle; scutellum more broadly and more extensively reddish posteriorly; hairs in collar above and in upper part of mesopleural tuft more yellowish to deep yellowish; middle cross vein in wings at about or nearer basal third of discoidal cell; second vein tending to be more sinuous and more recurved apically. . . . ♂ *viduatus* (Lw.) (p. 593)
- (b) Antennal joint 3 distinctly more conical or subconical, more gradually broadened below to bulbular base, its slender part thicker and stouter and less demarcated, its terminal joint on the whole shorter, scarcely or less than half length of slender part; frons without a distinct foveate depression in middle; scutellum less extensively or only narrowly or obscurely reddish apically; hairs in collar and upper part of mesopleural tuft paler, more creamy or whitish; middle cross vein tending to be at less than or scarcely at basal third of discoidal cell; second vein tending to be slightly less sinuous and less recurved apically. . . . ♂ *aberrans* n. sp. (p. 595)
31. (a) Basal and costal infuscation in wings paler, more yellowish brownish, with only base or extreme base of second basal cell infused, the extreme base of anal cell not or only slightly infused and with either a larger clear spot in middle of first basal cell or apical part of latter more hyaline; hairs and scales on pleurae and body below, though mainly dark, with more pale hairs in upper part of mesopleural tuft and with much pale scaling or more numerous pale, whitish or greyish white ones on venter; occipital girdle of white scales less defined or demarcated; abdomen above on the whole with more pale scaling other than white ones. . . . 32
- (b) Basal and costal infuscation darker, blackish brown to almost black, with at least basal half of second basal cell and much of the base of anal cell infuscated, base of marginal cell to some distance beyond base of second vein infuscated and with only a smallish clearer area in middle of first basal cell; hairs and scaling on pleurae and body below almost entirely dark, with a smaller part of upper part of mesopleural tuft pale and with scaling on venter mainly dark or with fewer greyish ones; occipital girdle of snow-white scales more sharply demarcated; abdomen above, other than white and pale scales, with more extensive dark ones. . . . ♀ *cidarellus* n. sp. (p. 564)
32. (a) Less of basal part of second basal cell in wings infused and base of marginal cell as well as nearly apical half of first basal cell much clearer or hyaline; small spot at base

of discoidal cell smaller; basal comb less developed; knobs of halteres darker, more brownish; snow-white scaling on frons in front sometimes also extending densely down middle of face basally; tergite 1 on sides with more yellowish scales; scaling on venter more snow-whitish; pale scaling on abdomen above, other than white ones, slightly more yellowish; antennal joint 3 slightly more subconical or club-shaped, its slender part relatively longer and stouter, its terminal joint shorter, not much longer than or scarcely as long as joint 2. ♀ *uroganus* n. sp. (p. 564)

- (b) More of basal part or almost basal half of second basal cell, entire apical part of first basal cell and base of marginal cell to some distance beyond base of second vein distinctly infused; spot at base of discoidal cell larger; basal comb more developed; knobs of halteres paler, more yellowish or pallid; whitish scaling on frons anteriorly appearing more greyish and not extending densely down middle of face; tergite 1 with more or rather conspicuous white scaling on sides; scaling on venter more greyish or greyish yellowish posteriorly; pale scaling on abdomen above, other than white ones, with paler, more creamy, yellowish white or greyish ones; antennal joint 3 more flask- or pear-shaped, rapidly narrowed from broad base to a shorter, thinner slender part, its terminal joint distinctly longer, longer than joint 2. ♀ form of *cidarellus* n. sp. (p. 566)

33. (a) Base and anterior part of wings more extensively infuscated, with more than basal half or at least basal half of second basal cell and base of marginal cell to a little beyond base of second vein also darkly infuscated; subopaquely whitish or yellowish spot at about middle of first basal cell large and conspicuous; knobs of halteres more brownish; sides of abdomen usually less extensively reddish brownish; propleural and prosternal tufts with distinctly more extensive and denser black hairs in front and mesopleuron also with more extensive and denser black ones, and lower part of metapleural tuft more yellowish or fulvous. ♂ *thyridus* n. sp. (p. 596)

- (b) Base and anterior part of wings slightly less, and also less darkly, infuscated, with only base or extreme base of second basal cell infused and with only base of marginal cell up to base of second vein slightly subopaquely greyish yellowish or pale yellowish brownish like apical part of first basal cell (the latter not so intensely dark); clearer subopaquely yellowish spot at middle of first basal cell smaller; knobs of halteres sometimes more yellowish; sides of abdomen on the whole more extensively reddish like apex; propleural and prosternal tufts entirely pale or yellowish, or at least with only a few dark hairs, with much fewer or distinctly less extensive dark ones on mesopleuron, and lower part of metapleural tuft scarcely less white than upper part or entirely white. 34

34. (a) Antennal joint 3 distinctly much more rapidly bulging or broadened bulb- or flask-like basally, its slender part thinner and its terminal joint much longer, quite as long as or longer than slender part; sides of face slightly more extensively reddish; hinder part of scutellum less extensively reddish and sides of abdomen also less extensively or scarcely reddish or only so on tergite 2; frons, especially basal half, and sides of face with reddish golden, luteous or golden gleaming hairs; prosternal part and propleural tuft with some or even numerous dark hairs anteriorly; mesopleuron with more numerous and denser black hairs below pale upper part of tuft; pale scaling on venter more yellowish or ochreous; scaling on legs more sand-coloured yellowish; basal cross vein of fourth posterior cell without any distinct spot-like infusion; knobs of halteres darker, more brownish. ♂ *arenicolus* n. sp. (p. 597)

- (b) Antennal joint 3 more club-shaped or pestle-shaped or even subconical, more gradually broadened basally below, its slender part relatively thicker and its terminal joint shorter, much shorter than slender part; sides of face less extensively reddish; hinder part or half of scutellum more extensively reddish and sides of abdomen broadly or more extensively reddish; frons and face with entirely dark hairs or with much fewer pale gleaming ones; prosternal and propleural tufts entirely pale or yellowish or with only a very few dark hairs in front; mesopleuron with much fewer dark hairs; pale scaling on venter white or more whitish; scaling on legs more greyish whitish; basal cross vein of fourth posterior cell with a more distinct spot-like infusion; knobs of halteres paler, more pale yellowish. ♂ *semilautus* n. sp. (p. 599)

35. (a) Anal cell in wings distinctly less infuscated, either entirely clear or infuscated or infused only at extreme base or up to less than basal third (along middle of infusion). 36
- (b) Anal cell distinctly more infused or infuscated in basal part, up to at least basal third (along middle of infusion) or to basal half or even slightly beyond. 46
36. (a) Apex or apical part of second basal cell in wings clear, hyaline, or tending to be hyaline to a variable extent. 37
- (b) Entire second basal cell infuscated throughout and, if with less infuscated or clearer parts, these are in middle of cell nearer apex. 39
37. (a) Legs paler, paler brownish or yellowish brown and pale-scaled or with more numerous pale ones; hairs on pleurae, apart from the dark or black ones, with more numerous pale or yellowish or fulvous yellowish ones, especially in propleural and prosternal tufts; scaling on head in front, apart from the greyish yellowish, yellowish or pale ones, with fewer dark or black ones; scaling on abdomen above, other than white and yellowish or ochreous ones, with less extensive black ones; scaling on venter more extensively pale, whitish, yellowish and ochreous, without any or with less extensive patches or spots of dark ones; forward bend in apical part of second vein more pronounced. 38
- (b) Legs much darker, very dark blackish brown or black and dark- or black-scaled or at least with more extensive dark scaling; hairs on pleurae on the whole much darker, mainly dark or with relatively fewer fulvous or brownish fulvous ones in propleural and prosternal tufts; scaling on head, apart from the pale or whitish or greyish white ones, with more numerous black ones intermixed; scaling on abdomen above, other than white and ochreous or yellow ones, with more extensive black ones; scaling on venter with more or less longitudinal rows of segmental patches of black ones among the whitish or greyish yellowish or yellowish ones; forward bend in apical part of second vein less pronounced. ♂ form of *viduatus* (Lw.) (p. 594)
38. (a) Face distinctly longer, more pointed apically, scarcely or only about half length of frons; interocular space on vertex in ♂ about or nearly twice width of ocellar tubercle; antennal joint 3 more rapidly broadened bulb-like basally below, its slender part tending to be longer and its terminal joint distinctly longer, longer than joint 2; frons sometimes with a central longitudinal yellowish streak in anterior half; scutellum more extensively reddish and even sides of abdomen, as well as its apex, and broadish hind margins of sternites more extensively reddish; base of thorax above and scutellum with distinctly more conspicuous and contrasting white or greyish white scaling; propleural tuft with more yellowish or greyish white hairs posteriorly; anterior part of metapleural tuft with some dark hairs among the fulvous ones; base of anal cell more extensively infused; clearer part at about middle of first basal cell much larger; second vein slightly less sinuous apically; knobs of halteres brownish. ♂ form of *caffrariae* n. sp. (p. 589)
- (b) Face distinctly shorter, more bluntly protuberant, distinctly less than half length of frons; interocular space on vertex in ♂ distinctly narrower, only a little wider than tubercle; antennal joint 3 less rapidly broadened basally below, more subconical or pestle-shaped, its slender part tending to be stouter and shorter and its terminal joint much shorter, scarcely longer than joint 2; frons entirely black; only extreme hinder border of scutellum slightly ferruginous, the sides of abdomen black or less extensively tinted and hind margins of sternites more narrowly or not at all reddish; base of thorax and scutellum with the pale or whitish scaling less extensive and less conspicuously contrasting; propleural tuft either entirely dark or with fewer fulvous gleaming hairs posteriorly; metapleural tuft entirely whitish or pale, without very dark or black hairs anteriorly; base of anal cell infused only at extreme base; clearer or yellowish spot in middle of first basal cell small; second vein distinctly more sinuous apically; knobs of halteres very pale yellowish. ♂ *beneficus* Aust. (p. 585)
39. (a) Hairs on pleurae with much extensive or more numerous dark or black ones on mesopleuron below upper pale part of tuft and in propleural and prosternal tufts; basal and antero-costal infuscation in wings darker, darker brown, blackish brown to black and middle part of second basal cell not tending to be clearer. 40

- (b) Hairs on pleurae mainly pale or yellowish, the propleural tuft mainly pale and mesopleuron and prosternal part either mainly pale-haired or with relatively much fewer dark hairs; basal and antero-costal infuscation paler, paler brownish or pale yellowish brownish and middle part of second basal cell often tending to be clearer towards apex. 42
40. (a) Hinder part or hind half of scutellum, sides of abdomen to a variable extent, sometimes apex of abdomen, and broadish hind margins of sternites reddish or ferruginous; pleurae more reddish brownish; legs paler, more pale yellowish brownish or pale reddish brown, more yellowish-scaled or with more numerous yellowish ones; mesopleuron and prosternal part with relatively less extensive or at least less dense black hairs; first posterior cell in wings distinctly more narrowed apically, more sub-spindle-shaped; subopacely yellowish or whitish spot in first basal cell larger; terminal joint of antennal joint 3 relatively shorter. 41
- (b) Scutellum and abdomen entirely black; pleurae darker; legs much darker, very dark blackish brown or black, more extensively dark-scaled, but the pale ones more whitish; mesopleuron and prosternal part with more extensive and denser black hairs; first posterior cell very broadly open, scarcely or not narrowed apically; subopacely whitish spot in first basal cell much smaller; terminal joint of antennal joint 3 longer. ♀ *abruptoides* n. sp. (p. 574)
41. (a) Infuscation in anal cell in wings distinctly less extensive, confined more to base of cell, scarcely or just about reaching a point opposite middle of second basal cell; infuscation in marginal cell extending apically to at least or even slightly beyond midway between base of second vein and end of false vein; pale spot in middle of first basal cell smaller; pale scaling at base of thorax and scutellum not forming a conspicuous and contrasting white dorsal patch; black scaling on abdomen above slightly less extensive, the bands of yellowish or ochreous ones broader; white band across basal part of tergite 3 narrower; antennal joint 3 tending to be slightly more rapidly dilated or bulging bulb-like basally. ♀ *thyridus* n. sp. (p. 596)
- (b) Infuscation in anal cell on the whole slightly more extensive, extending to a point much beyond middle level of second basal cell; infuscation in marginal cell extending for a very much shorter distance or only a little way beyond base of second vein; pale spot in first basal cell much larger; white scaling at base of thorax and on scutellum forming a conspicuous and contrasting white dorsal patch; black scaling on abdomen above distinctly more extensive, the bands of yellowish or deep ochreous ones across hind margins, and on disc of tergite 2, comparatively narrower; white band across tergite 3 broader, occupying more than basal half of segment; antennal joint 3 tending to be slightly less rapidly dilated bulb-like basally. ♂ *caffariae* n. sp. (p. 587)
42. (a) Antennal joint 3 distinctly more rapidly broadened or bulging bulb-like basally below, its slender part more demarcated and usually longer, its terminal joint longer, longer than joint 2; pale scaling on abdomen above, other than white ones, deeper yellowish, ochreous yellowish to orange yellowish, the white ones in more conspicuous and contrasting bands across base of tergite 3, sides basally of 4 and across 6 and 7, the black ones also more extensively present; scaling on frons not brilliantly glittering or shining silvery or bronzy and, if shining, abdomen with much ochreous scaling; legs on the whole paler, more yellowish and, if dark, other characters do not differ; first posterior cell broader, broadly open, even if slightly narrowed apically; middle cross vein slightly farther away from base of discoidal cell, not nearer than basal third, usually a little more. 43
- (b) Antennal joint 3 more conical, less rapidly broadened basally below, its slender part thus less demarcated and shorter, its terminal joint very short, not longer than joint 2; pale scaling on abdomen above, other than white ones, paler, more greyish yellowish or buff yellowish to creamy yellowish, the white ones across tergite 1 and on those mentioned above not showing up so conspicuously on account of the very pale yellowish ones, with the black scaling distinctly less extensive; scaling on frons anteriorly in ♂ dense and shining silvery white, glittering more bronzy in ♀; legs darker brown or more

blackish brown; first posterior cell rather narrowish, more narrowed apically; middle cross vein nearer base of discoidal cell, between basal fourth and basal third.

- ♂ ♀ *nitidifrons* n. sp. (p. 590)
43. (a) Scutellum distinctly or more extensively reddish in hinder part or half and hind margins of apical tergites tending to be more reddish or extreme sides of tergites more reddish; mesopleuron and prosternal part without any or with much fewer dark hairs; legs on the whole paler, if denuded, more yellowish brownish; basal and antero-costal infuscation in wings darker, more dark or smoky brownish; knobs of halteres darker, more brownish. 44
- (b) Scutellum and abdomen entirely black or only extreme apical angle of former very obscurely and scarcely visibly reddened; mesopleuron and prosternal part and even propleural tuft with distinctly more black or dark hairs; legs on the whole darker, more piceous, even if denuded; infuscated parts in wings paler, more yellowish brown or brownish; knobs of halteres paler, more yellowish or yellow. 45
44. (a) Hairs on frons, especially in basal half, on sides of face and on antennae below not entirely black, but with an admixture of or with numerous pale yellowish or luteous ones; frons with dense sand-coloured yellowish scaling; sides of face slightly more extensively yellowish or reddish; scaling on venter and extreme inflexed sides of abdomen more yellowish; scaling on legs more sand-coloured yellowish; antennal joint 3 much more rapidly dilated bulb-like basally, its slender part slightly thinner and its terminal joint longer, nearly as long as slender part. ♀ *arenicolus* n. sp. (p. 597)
- (b) Hairs on frons, antennae and face entirely black; scaling on frons more whitish or greyish; sides of face less extensively reddish; scaling on venter and extreme inflexed sides of abdomen more whitish; scaling on legs also more greyish whitish; antennal joint 3 more pestle- or club-shaped, more gradually broadened basally below, its slender part relatively thicker and stouter and its terminal joint shorter, very much shorter than slender part. ♀ *semilautus* n. sp. (p. 599)
45. (a) Frons and base of face with more brilliantly shining silvery whitish scales; pale hairs on pleurae more yellowish or even straw-coloured yellowish; scaling on venter more whitish or at least creamy yellowish and pale ones on legs also more greyish whitish or greyish yellowish; interocular space on vertex in ♀ slightly narrower, a little less than twice width of ocellar tubercle; slender part of antennal joint 3 slightly more slender; anal cell with at least its basal third infuscated. ♀ *bechuanus* n. sp. (p. 591)
- (b) Frons and face with slightly duller greyish yellowish gleaming scales; pale hairs on pleurae deeper yellowish to even orange fulvous; scaling on venter deeper yellowish or more ochreous and pale ones on legs also deeper yellowish; interocular space on vertex in ♀ quite twice width of tubercle; slender part of antennal joint 3 stouter and thicker; anal cell with only extreme base infused. ♀ of eastern form of *bechuanus* n. sp. (p. 592)
46. (a) Scutellum entirely black; abdomen above and even posterior tergites also black; venter more often black or with the hind margins of sternites only narrowly or obscurely reddish; first and second antennal joints sometimes also dark or only joint 1 dark reddish and, if pale reddish, scutellum at least black. 47
- (b) Scutellum yellowish red, reddish or ferruginous reddish to a variable extent, either in apical half or part or across hind margin or border or even only at apex, occasionally entire scutellum reddish; sides of tergites 2 and 3 or sometimes entire sides of abdomen to a variable extent or sometimes only sides of tergite 2 and often at least hind margins of posterior tergites or even entire last tergite sometimes ferruginous reddish to a variable extent, especially in ♂♂; venter sometimes with hind margins of sternites more distinctly or even very broadly reddish and, if entirely black, hinder part of scutellum at least tinted reddish; first and second antennal joints or at least former usually light reddish. 52
47. (a) Infuscation in wings less extensive, occupying only extreme base of axillary lobe (if at all), less than basal half of anal cell, second basal cell only up to or scarcely beyond

- basal cross vein of fourth posterior cell, only extreme base of discoidal cell, first basal cell up to or scarcely beyond middle cross vein and basal part of marginal cell for only a little distance beyond base of second vein. 48
- (b) Infuscation in wings more extensive, occupying much more of base of axillary lobe even to a third or even half of its anterior basal part, at least or slightly more than basal half of anal cell, usually distinctly more of extreme base of fourth posterior cell, about basal fourth to basal third of discoidal cell, usually also a little beyond middle cross vein and base of second vein and basal part of marginal cell broadly to much beyond base of second vein, sometimes to nearly opposite end of false vein in costal cell. 51
48. (a) Antennal joint 3 distinctly longer, either club- or bulb-shaped or subconical, not retort- or flask-shaped, its slender part distinctly longer even if basal part be very rapidly bulging or broadened bulb-like, the terminal joint, relative to bulbular base and slender part, shorter and not as long as or longer than slender part or almost half as long as entire joint; legs on the whole darker, either more brownish or dark blackish brown and, if pale, not pale-scaled; basal infuscation in anal cell slightly more extensive, extending a little beyond basal third. 49
- (b) Antennal joint 3 markedly short, retort-shaped or flask-shaped, markedly bulb-like or bulging at base, rapidly narrowed below to a markedly short slender part which is shorter or scarcely as long as bulbular base, its terminal joint, relative to bulbular base and slender part, longer, quite as long as or even longer than slender part or almost half as long as entire joint; legs on the whole much paler, more yellowish brownish or even yellowish; basal infuscation in anal cell slightly less extensive, only about or scarcely reaching basal third of cell. ♂ *bolbocerus* n. sp. (p. 602)
49. (a) Face more sharply conical, more pointed apically; hairs on pleurae either paler yellowish brownish, with fewer or less extensive black hairs on mesopleuron and in propleural tuft or hairs on pleurae mainly dark velvety brownish, with extensive black hairs; pale scaling on abdomen above, other than white ones, paler, more ochreous or buff yellowish; scaling on venter more whitish or, if greyish yellowish, with more whitish ones; legs darker, dark blackish brown or black, greyish whitish or greyish yellowish-scaled and, if with brownish scales, legs are black; knobs of halteres paler, pale yellowish to ivory yellowish. 50
- (b) Face more roundly convex or protuberant, not sharply conical; hairs in upper part of mesopleural tuft, in propleural and prosternal tufts, metapleural tuft and scales on pleurae mainly deep fulvous or reddish brownish, but also with much black hair in mesopleural and prosternal tufts; pale scaling on abdomen above, other than usual white ones on tergites 3, 6 and 7, deep orange or reddish brown or ochreous brownish; scaling on venter brownish; legs more yellowish brown, with dark gleaming velvety brownish scaling; knobs of halteres dark brownish. ♂ *simmondsi* n. sp. (p. 586)
50. (a) Antennal joint 3 more rapidly dilated to broad bulbular base below, its slender part more slender, its terminal joint very much longer, very much longer than joint 2; hairs on pleurae on the whole darker, the paler ones more brownish or fulvous brownish, with however more numerous and denser black ones on mesopleuron below yellowish upper part of tuft and anteriorly in propleural and prosternal tufts; hairs at base of venter pale, the rest being mainly dark; scales on head in front tending to be narrower, more greyish yellowish to yellowish, less conspicuous; scaling on legs darker, more brownish or with more dark ones; infuscation in marginal cell less extensive, extending apically only for a very short distance beyond base of second vein and occupying only about or less than basal third of anal cell; first posterior cell very broadly open, scarcely or not narrowed apically. ♀ *abruptoides* n. sp. (p. 574)
- (b) Antennal joint 3 more pestle-shaped or even subconical, less rapidly dilated or bulging basally below, its slender part slightly thicker, slightly less demarcated, its terminal joint very much shorter, scarcely or not longer than joint 2; hairs on pleurae on the whole paler yellowish brownish, with much fewer and sparser dark ones on lower half of mesopleuron and in prosternal tuft; hairs on entire venter in ♂ and greater part of it in ♀ (excepting last two sternites) pale or whitish; scales on head in front rather broadish and white or greyish white, rather conspicuous; scaling on legs on the whole

paler, more greyish yellowish or even more dirty whitish; infuscation in marginal cell slightly more extensive, extending apically for a longer distance, about or nearly halfway between base of second vein and end of false vein and occupying a little more than basal third to even nearly basal half of anal cell; first posterior cell distinctly more narrowed apically. ♂ ♀ *griseifrons* n. sp. (p. 580)

51. (a) Wings narrower, relatively longer; first posterior cell distinctly more narrowed apically, often more sub-spindle-shaped, not tending to be as broad apically as second posterior cell; fourth posterior cell, though broad, not markedly so; axillary lobe relatively longer and narrower; infuscation in wings slightly less extensive, occupying less than basal half of axillary lobe and then only its anterior part, extending scarcely or only slightly or not at all across basal cross vein of fourth posterior cell and occupying only or scarcely basal fourth of discoidal cell; infuscation in marginal cell however extending slightly farther apically to about halfway between base of second vein and end of false vein in costal cell; knobs of halteres duller, darker whitish or yellowish; scaling behind eyes duller whitish and only so opposite indentation; white scales on sides basally of tergite 4 either absent or tending to be less extensive; pleural parts, even in certain pale-haired forms, with more black hairs on lower half of mesopleuron and in prosternal tuft; hairs and scales on sides of abdomen distinctly denser, longer, more bushy. ♀ *abruptus* (Lw.) and forms of it (p. 569)

- (b) Wings distinctly much broader and shorter, markedly broad across fourth posterior cell; first posterior cell markedly broad apically, not narrowed, tending to be as broad apically as second and even as broad as or scarcely narrower than third posterior cell apically; fourth posterior cell markedly broad apically, relatively more so than in other species; axillary lobe relatively shorter, broader, more rounded; infuscation slightly more extensive, occupying about or almost basal half of axillary lobe, extending more extensively into base of fourth posterior cell and occupying quite or almost basal third of discoidal cell; infuscation in marginal cell however less extensive, extending apically for a relatively shorter distance beyond base of second vein (due to a relatively shorter costal cell); knobs of halteres distinctly whiter, conspicuously ivory white; scaling behind eyes shining silvery white along entire margin and across occiput; white scales on sides basally of tergite 4 tending to be more extensive; pleural parts with fewer and less extensive black hairs on mesopleuron and prosternal part; hairs and scales on sides of abdomen distinctly sparser, shorter, less bushy. ♂ ♀ *transiens* Bezz. (p. 602)

52. (a) Hairs and scaling on pleural parts, other than upper part of mesopleural tuft, either entirely or mainly dark or black or with distinctly more extensive black ones, the entire prosternal tuft and greater part of propleural one being black, and metapleural tuft usually also with some or much black hair or very dark ones; hairs on greater part of venter, except at base, mainly dark or black, especially in ♀♀; abdomen above with the black scaling distinctly more extensive and, apart from white ones, with fewer or less extensive or at least narrower bands of yellowish or ochreous ones; scaling on venter on the whole with more numerous dark or brownish ones or even entirely dark-scaled; legs much darker, either very dark blackish brown to black and entirely or mainly dark-scaled or the scales usually gleaming graphite-like; abdomen entirely black. 53

- (b) Hairs and scaling on pleurae, other than upper part of mesopleural tuft, not predominantly or almost entirely black, much or more numerous yellowish fulvous, reddish fulvous or brownish fulvous ones being more extensively present in propleural tuft and usually also on prosternal part, and metapleural tuft usually mainly pale, whitish and yellowish or fulvous in part; hairs on venter, other than pale or whitish ones basally and dark ones in ♀♀ posteriorly, usually mainly pale; abdomen above with the black or dark scaling usually less extensive, the ochreous or yellowish ones being more extensive; scaling on venter on the whole mainly whitish or yellowish or with the pale ones more extensive; legs either much paler, yellowish or reddish brownish or only dark brownish and, if tending to be more blackish brown, with at least much pale scaling; abdomen above often with sides of tergite 2 or 2 and 3 or even entire sides and also last tergite or hind margins of posterior tergites and even of sternites reddish

- or ferruginous to a variable extent and, if entirely black, hairs on pleurae with more pale ones. 56
53. (a) Infuscation at base of discoidal cell slightly more extensive, the border of infuscation in wings less indented opposite it; infuscation in anal cell also slightly more extensive, occupying at least or almost basal half and extending obliquely straight across to basal cross vein of fourth posterior cell and also occupying upper part of base of axillary lobe; second vein and upper cubital branch more strongly sinuous or contorted apically; tergite 4 without any or with scarcely any white scales on sides basally; yellowish or ochreous scales on abdomen above less extensively developed, present only in relatively much narrower bands; antennal joint 3 slightly more pestle-shaped, less rapidly dilated to bulbular base below, its slender part thicker and less demarcated. 54
- (b) Infuscation at base of discoidal cell less extensive, occupying less of its base, the indentation in hind border of infuscation opposite it deeper; infuscation in anal cell also less extensive, occupying distinctly much less than basal half and usually falling a little or some distance short of basal cross vein of fourth posterior cell; second vein and upper cubital branch usually less sinuous and, if strongly sinuous, infuscation in anal cell less extensive; tergite 4 with an extensive patch or some distinct white scales basally on sides; yellowish or ochreous scales on abdomen above more extensive, present in slightly broader bands; antennal joint 3 usually more rapidly bulging or dilated basally below to bulbular base, its slender part being more slender and more demarcated and, if joint is more subconical or pestle-shaped, other characters do not differ. 55
54. (a) Hairs on pleural parts with a smaller or less extensive upper pale or yellowish part of mesopleural tuft, much fewer pale or fulvous hairs in propleural tuft and with some dark hairs in metapleural tuft anteriorly in addition to fulvous ones; yellowish or ochreous scales on abdomen above very poorly developed, only in narrowish bands, the black ones distinctly much more extensive; venter with more extensive dark scaling and paler ones more brownish; legs appearing much darker and black, due to more extensive dark scaling; squamae darker, brownish; knobs of halteres darker brownish. ♂ ♀ *monticolus* n. sp. (p. 579)
- (b) Hairs on pleural parts with a larger, more extensive upper pale or yellowish part of mesopleural tuft, with more extensive intermixed pale or fulvous hairs in propleural tuft and with hairs in anterior and lower part of metapleural tuft only fulvous or yellowish; yellowish or ochreous scales on abdomen above distinctly more extensive, occurring in broader bands, the black ones slightly less extensive; venter with more pale yellowish to whitish scaling; legs, even if dark, with more extensive or at least more numerous yellowish scales; hinder part or half or greater part of squamae paler, more yellowish; knobs of halteres paler, even if not yellowish, at least paler yellowish brownish. ♂ ♀ dark-haired forms of *lugens* (Lw.) (p. 578)
55. (a) More than basal third of anal cell infuscated; middle cross vein at distinctly more than or at much more than basal third of discoidal cell; scaling behind eyes mainly dark below contrasting patch of white ones behind indentation; antennal joint 3 slightly more rapidly dilated below to bulbular base, its slender part more distinctly demarcated and slightly more slender; frons with a more distinct foveate depression at about middle. ♀ *viduatus* (Lw.) and forms of it (p. 593)
- (b) Only about or less than basal third of anal cell infuscated, the infuscation thus falling far short of basal cross vein of fourth posterior cell; middle cross vein at about or at even slightly less than basal third of discoidal cell; scaling behind eyes white or at least mainly white even below the dense white patch behind indentation; antennal joint 3 slightly less rapidly dilated below to bulbular base, tending to be more pestle-shaped or even subconical, its slender part apparently stouter and towards its base less demarcated from broad base; frons with scarcely or with only a feeble central foveate depression. ♀ *aberrans* n. sp. (p. 595)
56. (a) Face more rounded or convex in profile, distinctly less conically pointed apically, relatively shorter or sometimes very short, usually distinctly less than half length of frons (from midway between antennae to ocellar tubercle); hairs on face and to a

certain extent also on frons and antennae relatively longer and denser, giving head in front, especially face, a distinctly more hairy appearance. . . . 57

- (b) Face more normally conically produced or more sharply pointed apically, usually distinctly longer or normally long, usually at least about or a little more than or even much more than half length of frons; hairs on face relatively much shorter and less dense, giving the face at least a distinctly less hairy appearance and, if longish and dense, face at least longer and more pointed apically. . . . 60
57. (a) Antennal joint 3 longer, more club-shaped, pestle-shaped or even subconical, its slender part distinctly longer, longer or much longer than broad or bulbular base and its terminal joint very much shorter, either less than or much less than half length of entire joint or very short; first posterior cell in wings distinctly, even if only slightly, narrowed apically, more sub-spindle-shaped. . . . 58
- (b) Antennal joint 3 distinctly shorter, more short-necked retort-shaped, its broad base markedly bulbular or bulging below, its slender part shorter, either as long as or more often shorter or much shorter than bulbular base and its terminal joint distinctly longer, very long and styloform, at least half length of and often longer than entire joint; first posterior cell scarcely or not narrowed apically. . . . ♂ ♀ *stylicornis* n. sp. (p. 600)
58. (a) Face in profile more rounded, relatively longer (frontal part of head from ocellar tubercle to midway between antennae less than $2\frac{3}{4}$ length of face); antennal joint 3 distinctly more bulb- or club-shaped, more rapidly dilated or bulging basally below, its slender part relatively shorter; antennal joints 1 and 2 or at least 1 paler reddish; anal cell slightly more extensively infuscated, up to only a little less than basal half, the margin of infuscation almost reaching or in line with basal cross vein of fourth posterior cell; first posterior cell tending to be less or less markedly narrowed apically; squamae more brownish or brown; head and body on the whole with apparently slightly shorter and less dense vestiture, with apparently less dense and extensive black hairs on mesopleuron below the pale upper part of tuft; sides of abdomen either with less extensive reddish on sides of tergites 2 and 3 or entirely black, even in ♂♂. . . . 59
- (b) Face distinctly much and markedly shorter, slightly less rounded in profile (frontal part from ocellar tubercle to midway between antennae about or even a little more than $2\frac{3}{4}$ to nearly 3 times length of face); antennal joint 3 more pestle-shaped or even subconical, tending to be more gradually broadened below to bulbular base, less bulging below, its slender part appearing stouter and slightly longer; antennal joints 1 and 2 darker or at least 1 darker reddish or entirely black; anal cell slightly less extensively infuscated up to only about or a little more than basal third, its posterior margin falling a little or much short of basal cross vein of fourth posterior cell; first posterior cell tending to be more obviously narrowed apically; squamae more opaquely yellowish; head and body on the whole with apparently slightly longer and denser vestiture and with apparently denser and more extensive black hairs on mesopleuron; sides of abdomen, at least sides of tergites 2 and 3 (especially 2), more extensively and more constantly yellowish reddish or red in both sexes. . . . ♂ ♀ *brevifacies* n. sp. (p. 582)
59. (a) Face on the whole slightly longer, more extensively reddish on sides and with some gleaming golden or reddish golden hairs on sides; scutellum more extensively or almost entirely reddish and sides of abdomen, especially in ♂, reddish or yellowish to a variable extent, especially on sides of tergite 2; legs on the whole paler, more yellowish and with much yellowish scaling; infuscation in marginal cell in ♂ at least less extensive, extending only a little beyond base of second vein; pale hairs on pleurae more yellowish to orange fulvous or fox-reddish, with slightly less dense or fewer black hairs on mesopleuron and prosternal part; scaling on venter whitish and greyish yellowish. . . . ♂ ♀ *occidius* n. sp. (p. 589)
- (b) Face on the whole relatively shorter, less extensively reddish on sides and with entirely black hair; scutellum scarcely or only very obscurely reddish at extreme apex or even entirely black and sides of abdomen entirely black, even in ♂; legs slightly more yellowish brownish or brown, with mainly dark or black scaling which gleam velvety brownish; infuscation in marginal cell, even in ♂, distinctly more extensive, extending

more broadly much farther beyond base of second vein; pale hairs on pleurae slightly deeper fulvous brownish or reddish brownish and with apparently slightly more extensive black ones on mesopleuron and prosternal part; scaling on venter more brownish. ♂ ♀ *simmondsi* n. sp. (p. 586)

60. (a) Antennal joint 3 distinctly less rapidly dilated to bulbular base basally below, less conspicuously bulging, more pestle-shaped or even subconical or conical, the bulbular base not markedly dilated, the slender part on the whole stouter, less demarcated from broad base and its terminal joint much shorter, not or not much longer than joint 2; interocular space on vertex, relative to ocellar tubercle, distinctly narrower in both sexes, only a little broader or at least less than or scarcely twice width of tubercle in ♂♂ and usually distinctly or much less than 3 times width of tubercle in ♀♀; pale scaling at base of thorax and on scutellum usually more yellowish, not forming a very conspicuous and contrasting white dorsal patch; tergite 4 more often without any white scaling basally on sides or with only a few in a smaller patch; squamae paler, more subopaquely yellowish; second vein apically and upper cubital branch tending to be more markedly sinuous or contorted. 61
- (b) Antennal joint 3 distinctly much more rapidly dilated basally below to bulbular base, more retort- or flask-shaped, bulb- or ham-shaped, the bulbular base more markedly bulging or onion-shaped, sometimes even conspicuously so, the slender part much thinner, more slender and usually well demarcated from bulbular base and its terminal joint usually longer or very long, usually distinctly much longer than joint 2; interocular space on vertex usually broader in both sexes, usually quite twice width of tubercle in ♂♂ and nearly or quite or even a little more than 3 times width of tubercle in ♀♀; legs on the whole paler, paler brownish or yellowish brownish to reddish brownish and, if dark or black, other characters do not differ; pale scaling at base of thorax and on scutellum more whitish or snow-white, tending to form a more conspicuous and contrasting white dorsal patch; tergite 4 with more numerous or with a more extensive patch of white scales on sides basally; squamae more brownish or brown to dark brownish; second vein and upper cubital branch tending to be less sinuous and contorted and, if markedly so, other characters do not differ. 62
61. (a) Scutellum more extensively reddish or at least in posterior part or hinder half; sides of abdomen and hind margins of posterior tergites, especially in ♂, or at least sides of tergite 2 (or 2 and 3) to a variable extent reddish; antennal joints 1 and 2 more usually pale reddish; antennal joint 3 more pestle-shaped; infuscation in marginal cell in ♂ not or scarcely extending much beyond base of second vein, in ♀ to about halfway between base of latter vein and end of false vein. ♂ ♀ *lugens* (Lw.) and colour forms of it (p. 576)
- (b) Scutellum only reddish at extreme apex or sometimes almost entirely black; sides of abdomen mainly black or only with obscure reddish on sides of tergite 2 (or 2 and 3) even in ♂ to a variable extent; antennal joint 1 constantly pale reddish, with 2 sometimes darker reddish or darkened above; antennal joint 3 sometimes tending to be more subconical; infuscation in marginal cell more extensive to a variable extent, distinctly extending beyond base of second vein in ♂ even to midway between latter and end of false vein as in the ♀ and in ♀ also tending to be more extensive, often extending slightly beyond midway between base of second vein and end of false vein. ♂ ♀ of some dark forms of *lugens* (Lw.) (p. 578)
62. (a) Legs distinctly darker, dark blackish brown to black and, if more piceous brownish, scaling at least is mainly dark or with fewer pale ones; pleural parts with distinctly more extensive and much denser black hairs, especially on mesopleuron below the pale upper part of tuft and on prosternal part. 63
- (b) Legs distinctly much paler, yellowish brownish, paler brownish or reddish brownish and entirely or mainly pale-scaled, the dark ones much fewer or absent; pleurae with the yellowish, fulvous, fulvous reddish or fulvous brownish hairs predominant, the black ones on mesopleuron and prosternal part less dense and conspicuous even if present. 65
63. (a) Antennal joint 3 more club- or pestle-shaped or even subconical, its slender part, relative to length of joint and its bulbular base, distinctly longer and its terminal joint,

relative to slender part, much shorter or very much shorter than slender part; face slightly longer, more pointed apically; legs much darker, blackish brown or black; infuscation in anal cell less extensive, its apical margin distinctly falling far short of and not reaching or in line with basal cross vein of fourth posterior cell; infuscation at base of discoidal cell less extensive, confined to extreme base, the hind margin of infuscation more deeply indented opposite it; second vein apically and upper cubital branch less sinuous or contorted, apex of former less recurved; white scales on sides basally of tergite 4 slightly more extensive; scaling on venter on the whole paler, more whitish, with fewer dark or brownish ones. 64

(b) Antennal joint 3 more retort- or flask-shaped, more markedly bulging below, its slender part, relative to length of joint and its bulbular base, distinctly shorter, only about or scarcely longer, even shorter, than bulb, and its terminal joint much longer, almost or even about as long as slender part; face shorter, more rounded apically; legs more dark reddish brownish, more dark-scaled; infuscation in anal cell relatively more extensive, its margin scarcely falling much short of basal cross vein of fourth posterior cell, reaching it or more in line with it; infuscation at base of discoidal cell slightly more extensive, occupying more of base, its margin less deeply indented; second vein and upper cubital branch more sinuous or contorted, apex of former slightly more recurved; white scales on sides of tergite 4 basally wanting or scarcely represented; scaling on venter mainly dark or brownish or with much dark or brownish ones. ♂ ♀ *vicinalis* n. sp. (p. 595)

64. (a) Middle cross vein in wings at more than or much beyond basal third of discoidal cell; pleurae with more pale or yellowish fulvous hairs and fewer or less dense black ones on mesopleuron and in propleural and prosternal tufts; scaling on legs with more pale or greyish yellowish ones; interocular space on vertex in ♀ about or only a little less than 3 times width of ocellar tubercle; frons with a more distinct central foveate depression; antennal joint 3 more rapidly dilated or bulging basally below, its slender part thus more demarcated and the terminal joint slightly longer. ♀ form of *viduatus* (Lw.) (p. 594)

(b) Middle cross vein at only about or at even a little less than basal third of discoidal cell; pleurae with slightly more or denser black hairs on mesopleuron and in propleural and prosternal tufts, the latter being almost entirely black; scaling on legs mainly dark; interocular space on vertex in ♀ only about $2\frac{1}{2}$ times width of tubercle; frons with a feebler central depression; antennal joint 3 slightly less rapidly dilated bulb-like basally below, the joint being more pestle-shaped and its terminal joint slightly shorter. ♀ *aberrans* n. sp. (p. 595)

65. (a) Slender part of antennal joint 3 distinctly much longer, longer than or much longer than bulbular base, its terminal joint, relative to rest of joint, much or very much shorter than slender part; red or reddish on body above more extensively present, the sides of face, the greater part of or almost entire scutellum, the base or greater part of postalar calli, the sides of abdomen, especially in ♂♂, hind margins of posterior tergites, last tergite, especially in ♂♂, the pleurae and broadish hind margins of sternites in both sexes being reddish or ferruginous to a variable extent; legs on the whole paler yellowish brown or reddish brown to cinnamon brownish; first posterior cell in wings distinctly more narrowed apically, more sub-spindle-shaped, the vein between it and second posterior cell more sinuous; black prealar bristles not accompanied by black bristly hairs or with a tuft of such hairs in front of them. 66

(b) Slender part of antennal joint 3 distinctly much shorter or markedly short, scarcely or only about as long as or even distinctly shorter than the markedly dilated bulbular base, its terminal joint distinctly longer, markedly long, at least as long as or longer than slender part and sometimes even as long as entire joint; red or reddish on body on the whole less extensively present, the scutellum sometimes only reddish apically, sometimes almost entirely black, the sides of abdomen more often without any red or only obscurely so in some ♂♂, the hind margins of posterior tergites and even last one, even in ♂♂, only obscurely or narrowly reddened if at all, more often entirely black, and venter mainly black or with scarcely indicated narrowish red hind margins in both sexes; legs more brownish, sometimes dark brown; first posterior cell not or scarcely

narrowed apically, usually very broadly open; some or numerous black bristly hairs or a tuft of such hairs present just in front of black prealar bristles. . . . 67

66. (a) Antennal joint 3 slightly less rapidly dilated or bulging basally below and its terminal joint relatively shorter, usually less or much less than half length of slender part; sides of face less extensively reddish, but frons sometimes with a central yellowish streak; hairs on face distinctly shorter, less dense and entirely black; pale hairs on pleurae more yellowish fulvous, those in upper part of mesopleural tuft more yellowish whitish and those in propleural tuft more whitish or greyish; white scaling at base of thorax and on scutellum forming a more conspicuous and contrasting white dorsal patch; discoidal cell slightly more acute or subacute apically, its apical vein slightly less oblique, more parallel to hind margin of wing.
 ♂ ♀ (especially ♀) *caffrariae* n. sp. and forms of it (p. 587)
- (b) Antennal joint 3 slightly more rapidly dilated or bulging basally below and its terminal joint relatively longer, distinctly more than half length of slender part; sides of face slightly more extensively reddish and frons without a pale streak; hairs on face distinctly longer and denser, the face appearing more hairy and with some golden gleaming hairs on sides, especially in ♂; pale hairs on pleurae more reddish fulvous or fox-reddish, those in upper part of mesopleural tuft deeper yellowish or more fulvous reddish and those in propleural tuft deeper yellowish; white scaling at base of thorax and on scutellum forming a slightly less contrasting white dorsal patch; discoidal cell slightly more subtruncate or more obtuse apically, its apical vein slightly more oblique to hind margin.
 ♂ ♀ *occiduus* n. sp. (p. 589)
67. (a) Face slightly longer (about or even a little more than half length of frons), more conical and more sharply pointed apically; frons and face, especially latter, with distinctly shorter and sparser hairs, appearing less hairy and scaling on head in front more whitish; terminal joint of retort-shaped antennal joint 3 distinctly shorter, usually less than half length of entire joint; scutellum entirely black or only very obscurely reddish at extreme apex; pale hairs on pleurae and in upper part of mesopleural tuft slightly less fulvous yellowish, usually with slightly less dense black ones on mesopleuron and in propleural tuft; infuscation in anal cell distinctly less extensive, its margin falling short or much short of and not reaching or in line with basal cross vein of fourth posterior cell, and that at base of discoidal cell usually confined to extreme base, the clear indentation opposite it usually deeper; middle cross vein tending to be at about or scarcely at or only a little beyond basal third of discoidal cell.
 ♂ ♀ *bolbocerus* n. sp. (p. 602)
- (b) Face slightly, but distinctly, shorter (scarcely half or slightly less than half length of frons), distinctly more rounded apically; frons and face, especially latter, with distinctly longer and denser hairs, appearing distinctly more hairy and scaling on head in front more greyish yellowish to yellowish; terminal joint of the markedly retort-shaped antennal joint 3 distinctly much longer, at least half length of and often longer than entire joint; scutellum more extensively or almost entirely reddish; pale hairs on pleurae tending to be deeper yellowish fulvous or even reddish or brownish fulvous and usually with slightly denser and more conspicuous black hairs in lower part of mesopleural tuft and anteriorly in propleural tuft; infuscation in anal cell usually more extensive, its margin usually reaching or in line with basal cross vein of fourth posterior cell and that at base of discoidal cell slightly more extensive, the clear indentation opposite it being shallower; middle cross vein tending to be farther away from base of discoidal cell, usually distinctly at or much beyond basal third (sometimes nearer middle) of this cell.
 ♂ ♀ *stylicornis* n. sp. (p. 600)
68. (a) Dark pattern in wings distinctly less extensive, more reduced, not reaching or extending much to hind border, the apical parts of anal and axillary cells and at least apical half or more of third and fourth posterior cells hyaline, the yellowish basal part distinctly more extensive and at least basal fourth or more of anal cell and basal half or more of second basal cell also yellowish and a basal or first dark band across wings thus much reduced or absent (there being a tendency for only one distinct broadish dark band to be present across wings); clear fenestrae on cross veins much narrower; middle cross vein tending to be at about or near or before middle of discoidal cell; submarginal

cells two in number and upper cubital branch rarely with a short stump; second tergite with a continuous, broad, transverse band of black scaling; tergites 3-7 with broad, discally uninterrupted, transverse bands of pale scaling, that on 3 and 7 white and the others broadly yellowish or ochreous discally at least; white scales on body below distinctly broader, more lanceolate, less hair-like and more conspicuous. . . . 69

- (b) Dark pattern distinctly more extensive, in form of two distinct bands across wings which are confluent posteriorly, reaching or extending to hind border, the apical parts of anal and axillary cells not or less clear and very much less than apical halves of third and fourth posterior cells hyaline, the yellowish basal part more reduced, only the base and extreme base of second basal and anal cells clear or yellowish, a basal or first dark band across wings thus broadly conspicuous; clear fenestrae much broader; middle cross vein much beyond middle of discoidal cell; three submarginal cells present or base of upper cubital branch with a conspicuous stump, rarely without a stump; second tergite with the transverse band of dark scaling much narrower on sides; bands of white or pale scaling on tergites 3 and 4 or 3-5 much interrupted discally by black or dark ones and also with more or even predominantly black ones across basal part of 5 and sides of 6; white scales on body below distinctly finer, hair-like and less conspicuous. . . . 71

69. (a) Pattern in wings less reduced, its border extending apically and posteriorly to nearly middle of first posterior cell and across to distinctly beyond middle of discoidal cell, to about middle of third and fourth posterior cells and to about or a little less than apical fourth of anal cell; yellowish basal part less extensive, extending to about basal fourth of anal cell and half of second basal cell; a first dark basal infusion across wings thus more evident and a larger, more conspicuous, dark infusion near base of first basal cell opposite base of third vein; femora with at least apical half of front ones below and apical part of middle ones more extensively yellowish; apical margin of tergite 3 with numerous and more extensive black scaling discally. . . . 71

♂ ♀ *subperspicillaris* Bezz. (p. 606)

- (b) Pattern in wings distinctly more reduced, its border extending apically and posteriorly to only base of first posterior cell and across to scarcely or only about middle of discoidal cell and to much before middle of third and fourth posterior cells and to about or only a little beyond middle of anal cell; yellowish basal part distinctly more extensive, extending to nearly halfway in anal cell and to more than half, or even greater part, of second basal cell; a first dark basal infusion across wings thus not evident and a much smaller darkish spot near base of first basal cell opposite base of third vein; femora with only extreme apices of front and middle ones yellowish; apical margin of tergite 3 without any or with much fewer dark scales discally. . . . 70

70. (a) Transverse band across wings slightly fainter, sometimes appearing more broken up; spot at base of third vein larger; infusion at apex of second basal cell smaller and fainter; sides of tergites 5 and 6, especially latter, with fewer and less extensive black scaling; tergites 3 and 4 in ♀ with a smaller, discal, black spot and tergite 7 entirely reddish, the abdomen above in ♀ on the whole with more red. . . . 70

♂ ♀ *calochromatus* Bezz. (p. 609)

- (b) Transverse band on the whole darker; spot at base of third vein much smaller; infusion at apex of second basal cell larger; sides of tergites 5 and 6 with more numerous or more extensive black scaling; abdomen above in ♀ with less red, greater part of disc of tergites 3 and 4 and greater part of 5-7 in ♀ being black. . . . 71

♂ ♀ *calochromatus* var. *macquarti* Bezz. (p. 610)

71. (a) Dark infuscated parts in wings less extensive apically, not occupying much more than basal half of enclosed submarginal cell nor apical part of discoidal cell, not extending into base of second posterior cell or along vein between latter and first posterior cell (entire second posterior cell clear), and not occupying much more than basal half or basal two-thirds of third posterior cell; clear part just before middle less yellowish and distinctly less extensive; base of second posterior cell without a window or a clear yellowish spot; fenestrae at apex of second basal cell and bases of discoidal, third and fourth posterior cells usually separated, not confluent and together not confluent with subpellucid spot in first basal cell and base of marginal cell; discoidal cell shorter, 71

tending to be more obtuse apically, its apical vein less S-curved; femora darkened or black to a variable extent; face and anterior part of frons yellow; frons with a pit-like central depression; abdomen above in ♂♂ mostly black or with larger black, discal patches; black scaling on tergite 2 extending much farther laterally across apical margin; pale hair less uniformly concolorous and yellow, that on pleurae below wings usually more contrastingly white. 72

- (b) Dark infuscated parts in wings more extensive apically, also occupying much more than basal half of enclosed submarginal cell, entire apical part of discoidal cell and extending into basal half or even more of second posterior cell and along vein between latter and first posterior cell and occupying also much more than basal half or even greater part of third posterior cell (only its middle apical part clear to a variable extent); clear part just before middle of wings (separating dark part into two bands) very much broader, more yellowish; base of second posterior cell with a window or clear or yellowish spot or an indication of one; fenestrae at apex of second basal cell and at bases of discoidal, third and fourth posterior cells usually confluent and also confluent with large subpellucid middle part of first basal cell and base of marginal cell; discoidal cell distinctly longer, tending to be more produced apically, its apical vein more S-curved; legs entirely or mainly yellow; entire frons and face, excepting a spot around ocelli or behind them, yellow; frons without a central depression; abdomen in both sexes more extensively yellowish or reddish above, the black discal parts much narrower, more so in ♂; black scaling on tergite 2 confined to discal black triangle; pale hair more uniformly yellowish or creamy yellowish, that on pleurae usually not so contrastingly whitish. ♂ ♀ *laetus* (Lw.) (p. 614)

72. (a) Infuscated parts in wings more brownish or chocolate-brownish, less uniform, appearing more broken up into cross bands, the costal cell paler opposite breaks in dark infuscation, the base more extensively yellowish, the part before cross vein in costal cell and bases of basal cells broadly and conspicuously yellowish, the alula and bases of anal and axillary cells also yellowish; basal comb yellowish or brownish; squamae yellowish or only very pale yellowish brownish; anterior part or half of frons to a variable extent and entire face yellowish or only with a faint, discal, dark spot; tibiae paler, more yellowish or pale yellowish brown; red on abdomen and venter in ♂♂ more extensive and even in ♀♀ the hind margins of sternites more broadly reddish; prealar bristles, bristly hairs on lower anterior part of mesopleural tuft, metapleural tuft and on coxae pale, without a dense tuft of or with much fewer black hairs on sides of tergite 3, fewer black ones on sides of 7 and with mostly whitish hairs on last few sternites; bands of white or pale scaling on tergites 3 and 4 not or only narrowly interrupted discally and with much pale scaling on last few sternites; scaling on legs mostly yellowish. 73

- (b) Infuscation in wings very dark blackish brown or black, more uniform, the costal cell also more uniformly dark like rest of infuscation, the base extensively black and the break across bases of basal cells indicated only by faint, almost obsolete, yellowish whitish spots, the alula, axillary lobe and base of anal cell as or almost as dark as rest of infuscation; basal comb black; squamae blackish brown; entire frons and discal part of face black; legs and even tibiae entirely very dark blackish brown or black; red or reddish brown on abdomen and venter, even in ♂, much reduced; some prealar bristles, numerous bristly hairs anteriorly in lower part of mesopleural tuft, some intermixed hairs in metapleural tuft, many hairs on coxae, numerous ones discally across hind margin of tergite 1, dense tufts on sides of tergites 2 and 3 and 5 to 7 and all or most of the hairs on last three or four sternites dark or black; bands of white scaling on tergites 3 and 4 more broadly interrupted by black scaling discally and also with much black scaling on venter posteriorly; scaling on legs dark. ♂ ♀ *speciosus* n. sp. (p. 614)

73. (a) Margin of infuscation in wings less sharply marked off, but appearing cloudy or hazy or imperceptibly grading into clear parts, the clearer parts apically in third and fourth posterior cells and at apices of anal and axillary cells less clear or sharply marked off; three submarginal cells usually present and, if occasionally only two, base of upper cubital branch with an upwardly directed stump and its hindward bend without a

tendency to have an indication of a stump; second posterior cell usually longer, relative to its width, or appearing narrower and sub-parallel-sided; reddish hind margins of posterior tergites narrower or obscure; face usually with a small, distinct or indistinct, dark spot discally; bristly hairs in lower part of mesopleural and metapleural tufts, on coxae, and the pale ones on sides of abdomen white, whitish or cream-coloured; black tufts on sides of tergites 2 (or 3) and 5-7 much denser, more conspicuous; white or whitish scaling on sides basally of tergite 2 narrower and those across 3 and 4 more broadly interrupted discally across hinder part and tergites 5 and 6 with much fewer pale scales, the latter tergite with only a large triangular white patch.

♂ ♀ *ternarius* Bezz. (p. 610)

- (b) Margin of infuscation sharply marked off from clear parts, the clearer parts apically in third and fourth posterior cells and at apices of anal and axillary cells very clear, sharply marked off; two submarginal cells constantly present, but base of upper cubital branch with a basally directed short stump; second posterior cell usually appearing shorter and broader, usually much broader apically than basally; red hind margins of last tergites much or very much broader; discal part of face more constantly without a dark spot; bristly hairs in lower parts of mesopleural and metapleural tufts, on coxae and the pale ones on sides of abdomen gleaming more reddish or reddish golden; black tufts on sides of tergites 2, 3, 5 and 6 sparser and absent on sides of 7; pale scaling on abdomen above more cream-coloured or yellowish or greyish white, that on sides of tergite 2 basally much broader and those across 3 and 4 almost uninterrupted discally across base, and much narrower across hinder part, and tergites 5 and 6 with much yellowish or ochreous scaling, even laterally. ♂ ♀ *idolus* n. sp. (p. 612)

Group I

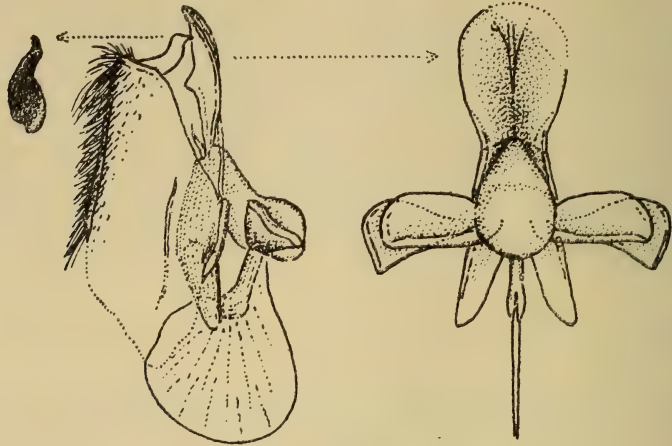
Species usually with clear wings or with only the base, or base and costal cell, or base and antero-costal part infuscated or tinted. *Legs* with the spicules in outer upper row on hind tibiae rarely markedly dense or very much closer together than in rest of rows; scales on hind tibiae rarely tending to appear feathery. *Vestiture* with a conspicuous, contrasting streak of dense white hairs or hair-like scales on each side of thorax above; hairs on face and sides of abdomen usually less dense, less shaggy in appearance. *Head* always with a distinct, foveate depression on occiput behind vertex; antennal joint 3 with a distinct terminal joint of variable length.

Thyridanthrax lloydi (Aust.)

(Austen, p. 92, *Bull. Ent. Res.*, v, 1914 (as *Villa*); Lloyd, p. 76, *Bull. Ent. Res.*, viii, 1916; Bezzi, pp. 192 and 194, *The Bombyliidae of the Ethiopian Region*, 1924; Austen, p. 152, *Bull. Ent. Res.*, xx, 1929.)

This species which Austen described from a ♂ bred from a puparium of the tsetse fly *Glossina morsitans*, collected in Northern Rhodesia, and of which the British Museum subsequently obtained some ♀♀ from the same locality, has also been bred from puparia of the same species of tsetse fly collected in Southern Rhodesia by Mr. W. L. Williams of the Department of Agriculture in Salisbury during 1938. Among the Bombyliid parasites kindly submitted by Mr. Williams are 1 ♂ and 3 ♀♀ of *lloydi*. This species is characterized as follows:

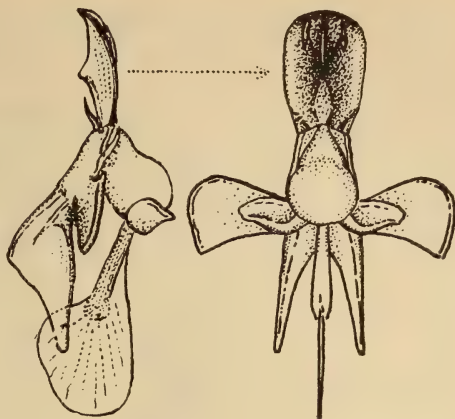
Body mainly black; integument of frons and face and pleural parts more blackish brown or dark brownish in denuded specimens; antennae, proboscis and postalar calli reddish brownish; legs blackish brown to black, the tibiae slightly paler, even more yellowish brownish. *Vestiture* with the black hairs on face rather dense; hairs on pleurae very dark blackish brown; upper part of mesopleural tuft and hairs in collar above yellowish to straw-coloured yellowish; metapleural tuft pale yellowish, straw-coloured yellowish to whitish, the hairs in its lower anterior part dark; tuft at base of abdomen on each side straw-



TEXT-FIG. 182. Side view of hypopygium, dorsal view of right beaked apical joint and ventral view of aedeagal apparatus of ♂ *Thyridanthrax lloydi* (Aust.).

coloured whitish or yellowish; hairs on venter pale basally, otherwise black; those on sides of abdomen black and those across hind margins of tergites in ♀ also black, but those apically as well as basally in ♂ pale; prealar bristles and some bristles across hind margin of scutellum black; postalar bristles and sometimes a few on extreme sides of scutellum yellowish; scaling on head buff-coloured, dull yellowish or ochreous yellowish; that behind eyes dull yellowish whitish; fine, short, hair-like scaling on thorax above yellowish brownish, brownish or sienna brownish, becoming paler basally and with longitudinal streaks of paler ones; streak on sides of thorax above cream-coloured or yellowish whitish; scaling on scutellum yellowish, without snow-white ones across hind margin; scaling on abdomen above rather fine, slender and hair-like, mainly dull yellowish to ochreous or pale yellowish brownish, that on extreme sides basally of tergite 3 and to a lesser extent on sides of 4 and 5 and also on sides of 6 whitish; that on tergite 7 not entirely snow-white, but more yellowish white than those on disc of abdomen, especially in ♂; scaling on venter mostly dark, but with yellowish ones; scaling on legs mostly yellowish or buff-coloured. *Wings* entirely vitreous hyaline, iridescent; first vein, third basally

and sometimes fifth basally yellowish, the rest of veins more brownish; first posterior cell not or only slightly narrowed apically; squamae subpellucid, white-fringed; knobs of halteres cream-coloured or yellowish white. *Head* with the interocular space on vertex in ♂ nearly or a little less than twice width of ocellar tubercle and about or a little more than twice width of the slightly broader tubercle in ♀; face not sharply conical, more bluntly rounded, slightly tumid or convex, markedly short; antennal joint 3 bulb-shaped, its slender



TEXT-FIG. 183. Side and ventral views of the aedeagal apparatus of a slight varietal form of ♂ *Thyridanthrax lloydi* (Aust.).

part ending apically in a distinct joint, bearing a stylet; proboscis not projecting beyond apex of buccal cavity, its labellar lobes nearly as long as basal part. *Legs* with 1 or 2 spines on middle femora below and about 2 or 3 spines on hind ones below. *Hypopygium* of ♂ (text-figs. 182 and 183) with the aedeagal process scoop-like, provided with a small hook on each side apically below; basal strut slightly variable in size, sometimes shorter and broader than shown in left-hand figure. Last sternite of ♂ (text-fig. 184) with a deep, rounded emargination and its dorso-apical angles pointed.

Length of body: about 5–6 mm.

Length of wing: about 5–5¼ mm.

Locality: Southern Rhodesia: Salisbury (Williams, March 1938; 29 March 1938; 31 March 1938; 6 April 1938; 10 April 1938; and 19 April 1938).

Easily recognized and distinguished from most other species by its rather blunt, subconical, very short and rounded face, entirely hyaline wings, predominantly yellowish or ochreous yellowish scaling on abdomen, absence of white scaling across hind border of scutellum, very incomplete bands of white scaling across tergites 3 and 6, absence of black scaling on abdomen above, yellowish postalar bristles, etc.

Both the larva and the pupal skin of this species have been described and figured by Lloyd (fig. 2, loc. cit.) and in part by Austen (fig. 2, a, loc. cit.).

Thyridanthrax atriventris n. sp.

Body, including scutellum, entirely black, only narrowish rims of buccal cavity and a streak below each antenna dirty yellowish to yellowish reddish; antennal joints 1 and 2 sometimes tending to be dark reddish; proboscis dark

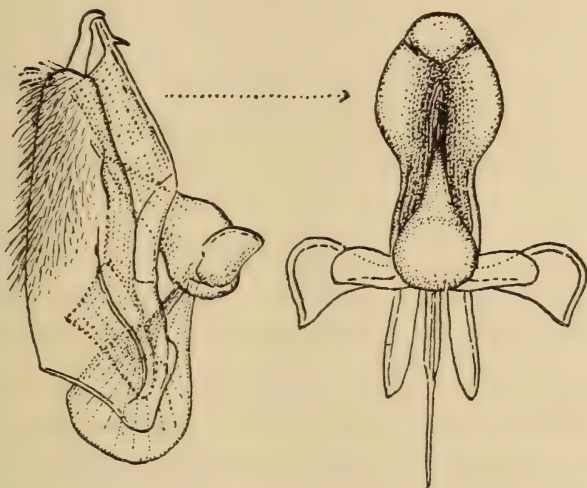


TEXT-FIG. 184. Side view of last sternite of ♂ *Thyridanthrax lloydi* (Aust.).

reddish brownish or blackish brown; legs very dark blackish brown to black. *Vestiture* with the hairs on head in front entirely black; those in collar above and in extreme upper part of mesopleural tuft whitish to straw-coloured; hairs in upper part of metapleural tuft and base of abdomen on sides snow-white; prealar, postalar and scutellar bristles black; fine hairs on disc of thorax above, fine ones (rather poorly developed) on sides of abdomen and in ♀ also on last three tergites black; those on last two tergites in ♂ gleaming sericeous yellowish; hairs on pleurae, prosternal part and in ♀ also on entire venter entirely very dark blackish brown or black; those

on venter very poorly developed, short and very sparse, gleaming pale at base in ♂ at least; scaling on head in front dull greyish whitish, dirty whitish to greyish yellowish, but also with much dark scaling; that behind eyes greyish yellowish, not snow-white and not concentrated in a dense white occipital girdle as in many other species; fine scaling on thorax above and on scutellum also mainly greyish yellowish; streak of dense hair-like scales on each side of thorax above yellowish whitish to dirty yellowish; scaling on abdomen above also mainly greyish yellowish, more whitish to white on sides basally of tergite 2, across basal half of 3 (denser and more evident on sides), across base of 6 and on entire 7 and to a lesser extent on extreme sides of 4 (this white scaling on tergites not conspicuously contrasting as in most other species and in ♀ last two tergites are even greyish yellowish-scaled discally); rest of scaling on abdomen above dark or black, but only extensively and broadly present across disc of tergite 2 and to a much lesser extent across base of 4 on sides and also on extreme sides of abdomen on tergites 2-5; scaling on pleurae and venter dark or blackish, gleaming greyish on venter in certain lights; scaling on legs mainly or entirely dark or blackish brown, gleaming graphite-like. *Wings* feebly, but distinctly, greyish hyaline; base and costal cell in ♂ and in ♀ also basal part of marginal cell, entire first basal cell and to a variable extent the second basal cell slightly subopaquely yellowish brownish or greyish yellowish; veins yellowish brown to brown; basal comb feebly developed; axillary lobe rather well developed, rather broadly lobately rounded, much broader than anal cell; second vein markedly sinuous, its forward bend near apex rather prominent; first posterior cell only very slightly narrowed apically; middle cross vein at about basal fourth to basal third and sometimes even a little beyond basal third of discoidal cell; squamae yellowish brownish, slightly more brownish basally and more yellowish in apical part, pale or white-fringed; knobs of halteres very pale yellowish to almost white. *Head* with the interocular space on vertex in ♂ about

$2\frac{1}{3}$ times width of ocellar tubercle and about $2\frac{2}{3}$ to nearly 3 times width of tubercle in ♀; antennal joint 3 subconical or pestle-shaped, not very rapidly dilated or broadened to bulbular base below, its slender part not well demarcated from base, gradually narrowed apically, its terminal joint short, about as long as or only a little longer than joint 2; face conically pointed apically. Legs with 1 or 2 (in most cases 1) spines beyond middle anteriorly on middle femora and with about 3 or 4 (or 5) on hind ones below, of which the apical one is the longest and of which the other in the ♂ are often minute; claws of front tarsi



TEXT-FIG. 185. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Thyridanthrax atriventris* n. sp.

very much reduced, minute. *Hypopygium* of ♂ (text-fig. 185) with the aedeagal process scoop-like, provided with a spine-like hook on each side near apex below; basal strut more or less racket-shaped.

From 9 ♂♂ and 9 ♀♀ in the South African Museum.

Length of body: about $3\frac{1}{2}$ –6 mm.

Length of wing: about $3\frac{1}{2}$ –6 mm.

Locality: Koup Karoo: Dikbome near Merweville in the Laingsburg Div. (Mus. Exp., Oct. 1952) (types); Letjiesbos (Mus. Exp., Nov. 1935). Great Karoo: Willowmore-Vondeling (Mus. Exp., Oct. 1952).

This species cannot be confused with other species and is easily recognized by the more or less uniform dull greyish yellowish scaling on body above, absence of a circum-occipital girdle of concentrated white scales, sparse and short hairs on abdomen, sparse and very short hairs on venter, entirely black hairs on pleurae and body below, and greyish hyaline wings.

From *lloydi*, which also has more or less uniform pale scaling above, it may however at once be distinguished by the longer and more conical face, entirely

dark or black hairs and scaling on pleurae and venter, black postalar bristles, broader axillary lobe, and even more reduced front claws.

Thyridanthrax salutaris Aust.

(Austen, p. 154 and fig. 3 (a), *Bull. Ent. Res.*, xx, 1929.)

This species was described by Austen from a single ♂-specimen bred from a puparium of *Glossina morsitans* collected by Dr. Lamborn at Lingadzi in Nyasaland. Among the species of *Thyridanthrax* bred from puparia of the same species of tsetse fly, collected in Southern Rhodesia and submitted by Mr. Williams of Salisbury, are two ♀-specimens which I take to belong to this species. As the ♀ has not yet been described, a redescription of the species is appended:

Body mainly black; antennal joints 1 and 2 slightly reddish to dark blackish brown in ♀; proboscis dark blackish brown; legs very dark or black, the tibiae more brownish. *Vestiture* with the hair on head in front, on antennae, two stoutish prealar bristles, the two postalar bristles, scutellar bristles, some bristly hairs on coxae and the hairs on sides of abdomen black; hairs across hind margins of tergites discally in ♀ up to tergite 5 gleaming more golden; hairs in collar above and upper part of mesopleural tuft straw-coloured yellowish to yellow; hairs and hair-like scales on pleurae gleaming golden to deep reddish or orange golden, with an admixture of dark ones in lower part of mesopleural tuft and on sternopleuron; metapleural tuft whitish above, slightly more yellowish below; some hairs on hind coxae golden to reddish golden; hairs at base of venter pale; tuft on sides of tergite 1 and on more than basal half of 2 on sides whitish; scaling on head in front yellowish white to golden or bronzy yellowish, more shining on face; that behind eyes silvery white; fine scaling on thorax and scutellum above deep orange yellowish or brownish ochreous; streak on each side of thorax above snow-white, continued as more flattened, cretaceous white scales across hind border of scutellum; scaling on abdomen above composed of transverse bands of deep orange yellowish or ochreous brownish ones and narrow bands of black ones across hind margins of tergites 2-4 and also centrally and discally on 2, and contrasting cretaceous white ones in bands across bases of tergites 2 and 3 (very dense on sides), on sides basally of 4 and across base of 6 and on entire 7; scaling on venter yellowish orange; that on legs yellowish, but with some dark ones on outer faces of femora and to a certain extent on tibiae above in ♀. *Wings* vitreous hyaline, the base and costal cell slightly more subpellucid; veins dark brownish, becoming paler towards base; middle cross vein much before middle of discoidal cell; the latter rather acute apically; first posterior cell only slightly narrowed apically; squamae subopaquely whitish, white-fringed; halteres yellowish, with paler knobs. *Head* with the interocular space in ♀ about 2-3 times width of ocellar tubercle; antennal joint 3 conical, gradually narrowed from broad base, ending apically in a terminal joint about as long as joint 2; face sharply conical. *Legs* with 2

stoutish spines on middle femora in front and about 1-3 smaller ones behind; hind femora with about 2-4 spines below of which the apical one is the longest.

Length of body: about $5\frac{1}{2}$ -6 mm.

Length of wing: about $5\frac{3}{4}$ -6 $\frac{1}{2}$ mm.

Locality: Southern Rhodesia: Salisbury (Williams, March 1938 and 24 April 1938).

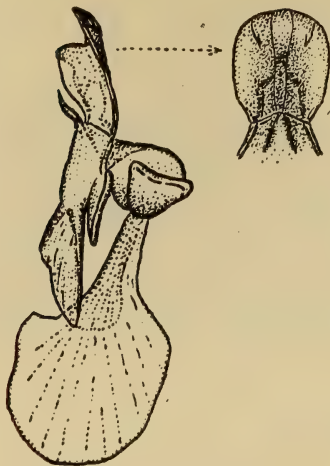
Can be easily distinguished from *lloydi* by its longer and more conically produced face, deep yellowish or orange yellowish or ochreous brownish scaling, slightly broader scales on body, white scaling across hind margin of scutellum, white bands across base of tergite 2 and more complete and conspicuous bands across 3 and 6, whiter streak on each side on thorax, black postalar bristles, etc.

Accompanying the two specimens are two empty pupal skins which are about 6-6 $\frac{1}{2}$ mm. long and about 2.2-2.6 mm. at broadest part. The cephalic spines are shorter and blunter than those of *lloydi* and the second pair are not trifid but more pyramidal.

Thyridanthrax argyrolophus n. sp.

Body black; postalar calli and hind margins of posterior segments narrowly dull reddish; legs dark blackish brown or reddish brownish, the tibiae slightly paler. *Vestiture* with the collar above, upper part of mesopleural tuft whitish or straw-coloured; upper part of metapleural tuft white, its lower anterior part black; hairs on pleurae black, with a very dark blackish brown velvety tint in certain lights; bristles on thorax and scutellum and on sides of abdomen black, some discally on tergites 1 and 2 and on last tergite in ♂ gleaming pale; hairs on venter pale sericeous in basal half; scaling on basal part of frons and on face dark, gleaming graphite-like greyish to slightly silvery on face, a patch of brilliantly shining, silvery white, elongated and flattened scales on frons anteriorly in ♂; scaling behind eyes also silvery; streak on sides of thorax above conspicuously snow-white, continued as glittering white scales across hind border of scutellum; fine scaling on thorax appearing dark, but gleaming greyish whitish; scaling on abdomen fine, hair-like, mostly dark, gleaming greyish yellowish or even whitish in certain lights, those on tergites 4-6 with some dull yellowish or buff-coloured ones, the bands on tergites 3 and 6 and entire 7 conspicuously snow-white; scaling on venter mostly dark, but with greyish yellowish or greyish white ones; scaling on legs gleaming greyish yellowish or graphite-like. *Wings* vitreous hyaline; base and costal cell slightly more subpellucid or whitish; veins yellowish to yellowish brownish; first posterior cell narrowed apically; squamae whitish; halteres yellowish, with almost white knobs. *Head* with the face subconically rounded in profile, more tumid than conical, comparatively short, the hairs on it comparatively longer and denser than in species with a produced face; antennal joints 1 and 2 with rather dense hairs (joint 3 missing in specimens). *Legs* with 1 or 2 spines on middle femora and 3-5 on hind ones. *Hypopygium* of ♂ (text-fig. 186) with

hooks on apical ventral part of scoop-like aedeagal process. Last sternite of ♂ resembles that of *lloydi*, but the dorso-apical process on each side relatively longer and the emargination before it shallower.



TEXT-FIG. 186. Side view of aedeagal apparatus (removed from basal parts) and ventral view of scoop-like aedeagal process of ♂ *Thyridanthrax argyrolophus* n. sp.

From 2 ♂♂ (type in the South African Museum and paratype in the Department of Agriculture, Salisbury, Southern Rhodesia).

Length of body: about 5–8 mm.

Length of wing: about $4\frac{1}{2}$ –7 mm.

Locality: South-West Africa: Kaross in the Kaokoveld (Mus. Exp., Feb. 1925) (type). Southern Rhodesia: Salisbury (Williams, March 1938).

This species can be very easily recognized by the short, subconical or tumid face, conspicuous patch of silvery scales on frons, entirely black-haired pleurae and hyaline wings. From *argentifrons*, which Austen described from ♂♂ bred from puparia of tsetse flies collected in Northern Nigeria, they appear to differ in having entirely black hairs on frons, more whitish and not ochreous hairs in collar, entirely

black postalar bristles, black hairs on pleurae, more dark scaling on abdomen above, etc.

The paratype from Salisbury which Mr. Williams forwarded along with the species bred from tsetse-fly puparia was evidently not bred from the latter, but collected in the field. It is much smaller than the type-specimen, with a comparatively narrower frons, a middle cross vein which is slightly nearer base of discoidal cell, a second posterior cell which is relatively broader apically in relation to base, and apparently fewer spines on hind femora. In view of the variability found in species of *Thyridanthrax* this specimen may be considered as merely representing a small form of this species.

Thyridanthrax leucoproctus (Lw.)

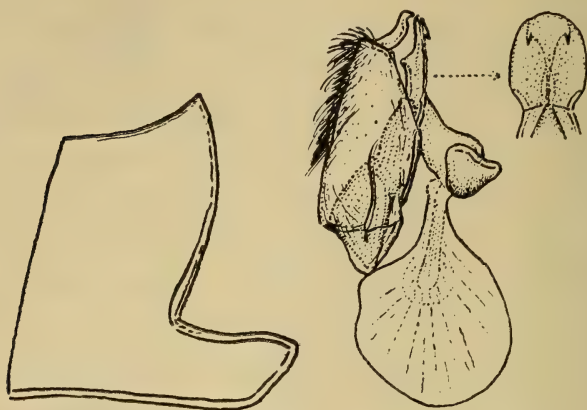
(Loew, p. 222, *Dipt. Faun. Südafr.*, i, 1860 (as *Anthrax*); Bezzi, p. 133, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 194, *The Bombyliidae of the Ethiopian Region*, 1924.)

From a long series of specimens before me from various parts in Southern Africa it is quite evident that this species, which Loew originally described from a ♂-specimen reputed to have come from the Cape, is variable in the colour of its hair, the presence or absence of dark hairs on pleural parts and the absence

or presence of spot-like infuscations on cross veins in basal half of wings. The characters of this species, as based on a long series of ♂♂ and ♀♀, are as follows:

Body with a dark chocolate brownish or dark cinnamon brownish tint, sometimes black, or with at least a dark cinnamon brownish pruinescence; face sometimes paler like the pleurae, more reddish brownish; antennae, proboscis and legs brownish to blackish brown or even black; antennal joints 1 and 2 if not entirely dark sometimes reddish or even light reddish; tibiae usually paler, more reddish, but in northern forms entire legs usually paler, more reddish brownish; hind margins of posterior tergites in ♂ sometimes yellowish red to a variable extent. *Vestiture* with the hairs in collar above, upper part of mesopleural tuft and sometimes propleural tuft yellowish to yellow; those on propleural and pleural parts however usually fulvous to deep yellowish or brownish fulvous, sometimes reddish brownish and either without any or sometimes with some dark or black hairs intermixed on prosternal, sternopleural and mesopleural parts; metapleural tuft whitish, its lower part sometimes fulvous; streak on sides of thorax above conspicuous and white; thoracic and scutellar bristles black or with the postalar ones sometimes yellowish or reddish, but sometimes also dark; hair on sides of abdomen, excepting white tuft basally, dark or black, some on sides and on last two tergites in ♂ however gleaming sericeous yellowish like most of the hairs on venter and in ♂ on abdomen above; bristly hairs on coxae either gleaming golden or reddish golden or sometimes dark on front and middle coxae; scaling on frons and face brilliantly glittering brassy or bronzy to golden yellowish, with a conspicuous patch of dense, flattened, brilliantly shining, silvery-bronzy, brassy to golden yellowish scales on frons anteriorly (those in ♂ usually denser and longer and in ♀ more golden or brassy); scaling behind eyes snow-white to silvery white; scaling on body above mainly buff-coloured, yellowish, ochreous yellowish to deep orange or ochreous brownish, but silvery whitish across hind margin of scutellum; scales across hind margins of tergites 2, 3 and narrowly across bases of 4 and 5 in ♀ black, these bands in ♂ broader; black scales on sides of 2 tuft-like and longish and some dark ones also across hind margin of 7 in ♀; bands of white scaling conspicuous and complete across bases (♀) and nearly basal halves (♂) of tergites 3 and 6, but sometimes only evident laterally as on sides basally of 2 and 4, usually covering entire 7; scaling on venter entirely yellowish or ochreous yellowish like that on legs. *Wings* hyaline; base and entire costal cell subopaquely pale yellowish to pale reddish yellowish; base of second vein, middle cross vein, base of third vein, base of discoidal cell and vein between second basal and fourth posterior cells either without any indication of spot-like infuscations or with distinct and sometimes conspicuous spots; first, third and fifth veins sometimes yellowish, the rest reddish brown to blackish brown or even black; first posterior cell narrowed apically; second posterior cell often broader apically than third; squamae subopaquely yellowish whitish, white-fringed; knobs of halteres very pale yellowish whitish. *Head* with antennal joint 3 conical or subconical, gradually tapering from broad bulbular base, ending

apically in a terminal joint which is about equal to, subequal to or even slightly longer than joint 2. *Legs* usually with 2 spines on middle femora and 5 or 6, but as few as 3 or as many as 7, on hind ones. *Hypopygium* of ♂ (text-fig. 187) with a distinct hook on each side apically on ventral aspect of scoop-like aedeagal process. Last sternite of ♂ as shown on left in text-figure.



TEXT-FIG. 187. Left: Side view of last sternite of ♂ *Thyridanthrax leucoproctus* (Lw.). Right: Side view of hypopygium and ventral view of aedeagal process of ♂ of same species.

In the British, Transvaal, Rhodesian and South African Museums, and in the Commonwealth Institute and Division of Entomology in Pretoria.

Length of body: about 4–9½ mm.

Length of wing: about 4–9 mm.

Locality: Western Cape, Eastern Cape, Karoo, Namaqualand, Natal, Zululand, Transvaal, South-West Africa, and Southern Rhodesia.

At least three forms of this species occur in South Africa. A form without any spots on cross veins, with a slightly clearer costal cell, without any or only a very few dark hairs on prosternal and pleural parts, with pale postalar bristles and with the integument and legs darker, sometimes black. Another form, a transitional one, found in the Karoo differs from the former in having numerous dark hairs on pleurae, black postalar bristles and feeble spots on cross veins. Still another form, from Natal, Zululand, Eastern Transvaal and Rhodesia, has the base and costal cell in wings more uniformly reddish brown, more distinct and conspicuous spots on cross veins, a more cinnamon brownish body, more whitish scaling on venter, more numerous black hairs on prosternal and pleural parts, black postalar bristles, deeper fulvous hair on pleurae and paler, more reddish, legs. A ♂ and a ♀ of this latter form in the South African Museum were labelled as *flammiger* (Walk.) by Bezzi, a species which was originally described from Nigeria. From Walker's unsatisfactory description (p. 262,

List Dipt. Brit. Mus., ii, 1849) it is impossible to say what insect he had before him, but from Bezzi's redescription of the species *flammiger* appears to differ from *leucoproctus* in not having a dense patch of brilliantly shining, silvery-bronzy or brassy scales on frons, entirely black antennae and paler yellowish scaling on abdomen above.

Biology: A series of specimens of *leucoproctus* was submitted by Mr. S. J. S. Marais of the Division of Entomology as having been bred from caterpillars (Karoo army worm) of the moth *Loxostege frustalis* collected at Middelburg in the Cape Province. Subsequently he was however able to prove that this species of *Thyridanthrax* is a secondary parasite which does not parasitize the caterpillars themselves, but their primary parasite, a species of *Macrocentrus* (Fam. *Braconidae*). Two cocoons of this Braconid, still lodging the partially extruded pupal skins from which two ♂-specimens of *T. leucoproctus* had emerged, have also been kindly submitted by Mr. Marais. It is therefore quite evident that this species of *Thyridanthrax* parasitizes a Braconid parasite of the Karoo army worm and must be considered as an enemy and not an ally of the Karoo farmers in their fight against the army worm.

Thyridanthrax phileremus n. sp.

At first sight this species may be easily mistaken for a form of *leucoproctus*. It may however be readily distinguished from the latter in the following respects:

Body black, not tinted cinnamon brownish; antennae entirely black; legs much darker or black. *Vestiture* with the hairs in collar above and in mesopleural tuft straw-coloured whitish or yellowish, that on pleural parts much paler, only pale yellowish or straw-coloured yellowish, not fulvous, with only some hairs on prosternal part and bristly ones on all the coxae black; all the thoracic and scutellar bristles black; scales on head glittering more silvery white, the patch on frons in front dull silvery white and scaling behind eyes showing more silvery; scaling on body above not dull deep yellowish or ochreous, but gleaming greyish yellowish; that on tergites 4 and 5 even appearing dark or brownish bronzy; tergites 2, 4 and 5 with distinctly more black or dark scaling; bands of snow-white scaling across 3 and 6 relatively broader; scaling on venter more whitish; that on legs mainly dark, gleaming graphite-like. *Wings* hyaline, the base and costal cell not subopaquely yellowish or pale yellowish reddish, but paler, more subpellucid or whitish, without any spots on cross veins; discoidal cell tending to be more constantly acute apically; second vein usually less recurved apically. *Head* with the terminal joint of antennal joint 3 relatively shorter or much shorter, usually shorter than joint 2. *Legs* with the spicules in outer upper row on hind tibiae distinctly more numerous and closer together than in *leucoproctus*. *Hypopygium* of ♂ much like that of *leucoproctus*, but with the hook on each side apically of scoop-like aedeagal process below broader, blunter and longer; aedeagus itself distinctly longer; racket-shaped basal strut distinctly narrower and longer. Last sternite of ♂ (text-fig. 188).



TEXT-FIG. 188. Side view of last sternite of ♂ *Thyridanthrax phileremus* n. sp.

From 3 ♂♂ and 8 ♀♀ (types and paratypes in the South African Museum).

Length of body: about 6–9½ mm.

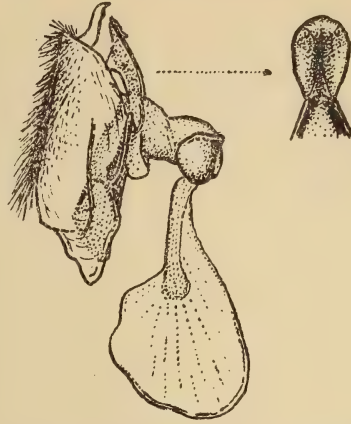
Length of wing: about 6–9 mm.

Locality: Bushmanland: Onseepkans on the Orange River (Mus. Exp., Oct. 1939) (types); Naib between Springbok and Pella (Mus. Exp., Oct. 1939); Pofadder (Mus. Exp., Oct. 1939). Koup Karoo: Koup (Mus. Exp., Feb. 1938); Dikbome near Merweville in the Laingsburg Div. (Mus. Exp., Oct. 1952); Merweville Dist. (Zinn, Jan.–Feb. 1947). South-West Africa: Outjo (Mus. Exp., Jan. 1925); Kaross in the Kaokoveld (Mus. Exp., Feb. 1925).

Thyridanthrax anisospilus n. sp.

Body black; antennal joints 1 and 2 reddish to a variable extent; femora blackish brown to black, but sometimes with the lower surfaces of front and middle ones paler brownish or yellowish brownish; tibiae usually yellowish brownish. *Vestiture* with the hairs in collar above, upper part of mesopleural tuft, on propleural and prosternal parts straw-coloured yellowish to yellowish; those on latter parts sometimes slightly fulvous; hair on rest of pleurae gleaming more yellowish brownish to fulvous brownish, with some or fairly numerous black ones intermixed on prosternal and mesopleural parts; metapleural tuft whitish, its lower part more yellowish or pale fulvous anteriorly; humeral tuft, tuft at base of abdomen and hairs on venter (♂) and basal half in ♀ whitish; hairs on last coxae also pale; hairs on sides of abdomen and across hind margins from tergite 2 black, but some discally and across last two tergites in ♂ sericeous whitish; all the thoracic and scutellar bristles black; streak on side of thorax above white; scaling on head in front gleaming pale brassy to bronzy yellowish, with a dense patch of elongated, brilliantly shining, silvery or silvery-bronzy to brassy scales on frons anteriorly, but also with much dark scaling on face; pale scaling on body above yellowish, ochreous yellowish to deep orange or brownish yellow on abdomen; that across hind margin of scutellum snow-white; much black scaling present above on tergite 2 and across bases of 4 and 5; that on sides of tergite 2 longer, more tuft-like; white bands on abdomen conspicuous on sides basally of tergite 2, right across basal half of 3, across middle on sides of 4, greater part or basal half of 6 and entire 7; scaling on venter white, yellowish across hind margins of sternites and black in a row of patches on each side; scaling on legs greyish yellowish to yellowish, but also with dark ones on anterior faces. *Wings* hyaline; base, entire costal cell, upper basal half of first basal cell in ♂ and entire first basal cell in ♀ yellowish brown, smoky brownish to

brown, the costal cell in ♂ tending to be slightly clearer than base and in ♀ also with extreme base of marginal cell infuscated; spot-like infuscations present on cross veins in basal half of wings, larger and more distinct in ♀, and with a constant faint spot on basal cross vein of fourth posterior cell as well; first posterior cell narrowed apically; middle cross vein nearer base of discoidal cell; squamae opaquely whitish, yellowish whitish or dirty yellowish, white-fringed; halteres and their knobs brown. *Head* with the interocular space on vertex in ♂ about twice or a little less or a little more than twice width of ocellar tubercle and about thrice or a little less width of tubercle in ♀; face normally conical; antennal joint 3 conical, more gradually narrowed below from bulb-shape base, ending in a terminal joint which is quite as long as or even a little longer than joint 2. *Legs* with 2 to 4 spines on anterior part of middle femora of which two are long, and with 2-5 or even more shorter spines on outer apical part; hind femora with about 4-9 spines below and a few apically above. *Hypopygium* of ♂ (text-fig. 189) with a small hook on each side of aedeagal process apically below and also a slight carinate ridge centrally and apically between the hooks. Last sternite of ♂ like that of *phileremus* (cf. text-fig. 188), but with the dorso-apical angle acute and the emargination not so broad.



TEXT-FIG. 189. Side view of hypopygium and ventral view of aedeagal process of ♂ *Thyridanthrax anisospilus* n. sp.

From 22 ♂♂ and 32 ♀♀ (types and paratypes in the South African Museum).

Length of body: about 4-9 mm.

Length of wing: about $4\frac{1}{2}$ - $8\frac{3}{4}$ mm.

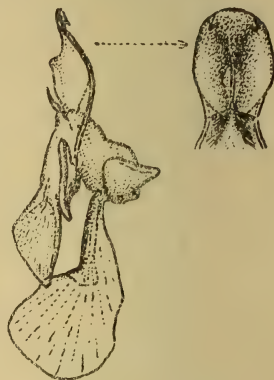
Locality: Western Cape: Citrusdal Dist. (Mus. Exp., Nov. 1948); Olifants River between Citrusdal and Clanwilliam (Mus. Exp., Oct.-Nov. 1931); Bulhoek between Clanwilliam and Klawer (Mus. Exp., Oct. 1950) (types); upper sources of the Olifants River, Ceres Div. (Mus. Exp., Dec. 1949). Namaqualand: Kamieskroon-Springbok (Mus. Exp., Oct. 1939); Bowesdorp (Mus. Exp., Nov. 1931); Klipvlei near Garies (Mus. Exp., Nov. 1931). Koup Karoo: Teekloof in the Nieuvelde Escarpment (Mus. Exp., Nov. 1935). North-eastern Karoo: Burghersdorp (Mus. Exp., Oct. 1936); west of Burghersdorp (22 miles) (Mus. Exp., Nov. 1939); Steynsburg (Mus. Exp., Oct. 1935).

This species can only be confused with certain forms of *leucoproctus*. From the latter it is however distinguished by the black integument, not entirely reddish or brownish legs, darker fulvous brownish and dark hairs on pleurae, darker and more blackish brown infuscation in wings, darker veins, brown halteral knobs, etc.

Thyridanthrax uroganus n. sp.

Resembles *anisospilus* very closely, but differs in the following respects:

Vestiture with the hair on pleurae entirely black or at least with very much fewer pale ones intermixed on propleural and prosternal parts; hairs in collar above slightly more whitish; pale scaling on frons in front and also very densely on face above duller snow-white, not glittering; white scaling on last two tergites in ♂ denser, conspicuously silvery white, covering the entire two tergites; scaling on venter mainly whitish. *Wings* in ♂ hyaline, only the base and hinder part of costal cell yellowish brownish to brownish; wings in ♀ like those of ♀-*anisospilus*, but with fainter spots and no indication of a spot on basal cross vein of fourth posterior cell; apical cross vein of discoidal cell relatively shorter, straight; first posterior cell tending to be less narrowed or not narrowed apically. *Head* with the interocular space relatively narrower, distinctly less than twice width of ocellar tubercle in ♂ and only a little more than twice width of tubercle in ♀. *Legs* without spinelets on outer or hinder face of middle femora and without any apical spines on hind ones above, the latter with only about 3 or 4 spines. *Hypopygium* of ♂ (text-fig. 190) differs from that of *anisospilus* in small details. Last sternite of ♂ also very similar.



TEXT-FIG. 190. Side view of aedeagal apparatus and ventral view of aedeagal process of ♂ *Thyridanthrax uroganus* n. sp.

From 5 ♂♂ and 6 ♀♀ in the South African Museum.

Length of body: about $4\frac{1}{2}$ –5 mm.

Length of wing: about $4\frac{1}{2}$ –5 mm.

Locality: Moordenaars Karoo in the Laingsburg Div. (Mus. Exp., March 1937) (types). Koup Karoo: Teekloof in the Nieuveld Escarpment (Mus. Exp., Nov. 1935); Beaufort West (Mus. Exp., Nov. 1935).

Thyridanthrax cidarellus n. sp.

Still another species which shows a marked sexual difference in the wings and which resembles both *anisospilus* and *uroganus* very closely. It is characterized as follows:

Body, including scutellum, entirely black; antennal joint 1 and sometimes also 2 dark reddish brownish; buccal rim and streak below antennae on each side of face brownish or yellowish brownish, sometimes yellowish; legs very dark blackish brown to black, but sometimes more brownish. *Vestiture* with the hairs on head in front, fine ones on thorax above, prealar, postalar and scutellar bristles, shortish bristly hairs on sides of abdomen from tergite 2 and in ♀ also at apex, hairs on mesopleuron below upper pale part of tuft, those in propleural

and prosternal tufts, on coxae and on hinder half, or in ♀ even greater part, of venter black; collar above and upper part of mesopleural tuft pale straw-coloured; metapleural tuft and dense hairs on sides of tergite 1 and basal half of 2 on sides white; fine bristly hairs across hind margin of last tergite in ♂ and hairs at base of venter (sometimes sparse) gleaming pale sericeous whitish or yellowish, especially in ♂; scaling on head in front composed of cretaceous white and black ones, the former rather conspicuous, intermixed with the black ones on face, more concentrated in a broadish patch across anterior part of frons and also in patches or as a band across frons just before middle, these two patches of white scaling being more or less separated by a broadish patch or band of entirely dark or black ones; white scaling behind eyes in form of a rather conspicuous and contrasting, narrow circum-occipital girdle, extending down on each side to level of indentation in eyes; fine scaling on thorax above greyish whitish to greyish yellowish, but more whitish or white at base and on scutellum; streak of dense hair-like scales on each side conspicuously snow-white; scaling on abdomen above composed of snow-white, greyish yellowish or dull yellowish and black ones, the white ones present as a rather conspicuous and dense patch across hind margin of tergite 1 and base of 2 on sides, as a band across base of 3, as a patch on sides basally of 4, across base of 6 (denser and broader on sides) and on entire 7; the dull yellowish or greyish yellowish ones present across tergite 1, base of 2 discally, sometimes also across middle part of 2 to a variable extent, across apical part of 3, discal part of 4, across 5 and 6 discally; the black ones more extensively present on tergite 2 than the yellowish ones and also rather extensively across rest of tergites not occupied by white and yellowish ones, and also across hind margin of last tergite in ♀; longer scaling on sides of abdomen also mainly black; scaling on body below rather sparse, dull greyish to dark on pleural parts and dull greyish yellowish to brownish or even dark on venter, but sometimes with much pale or even whitish ones along middle; scaling on legs dark or blackish brown, but also with dull greyish yellowish ones, sometimes appearing mainly dark. *Wings* hyaline, iridescent; base, costal cell and more or less basal half of first basal cell in ♂ yellowish brownish, the anterior part of costal cell and basal half of first basal cell being slightly clearer or even clear; infuscation in ♀ more extensive, the base, costal cell, basal part of marginal cell to some distance beyond base of second vein, entire first basal cell (except for large whitish spot), basal half or less and usually also extreme apical part of second basal cell along its apical veins (sometimes not) and base of anal cell to a variable extent being yellowish brownish to brown; second basal cell in ♀ with the apical part between the basal infuscation and extreme apical fuscous borders to apical veins usually with a characteristic clearer area in typical form, but in forms without fuscous borders to apical veins the greater apical part of second basal cell is clear; first basal cell with a distinct and variable clearer or whitish spot about middle; spots on cross veins in basal half of wings only feeble or scarcely indicated in ♂, more conspicuous in ♀, the one at base of discoidal cell and usually also another on basal cross vein of fourth posterior cell being

markedly conspicuous; second vein rather markedly sinuous; first posterior cell very broadly open apically; middle cross vein at about basal fourth or between it to nearly or even at about basal third of discoidal cell; squamae dirty whitish or yellowish, pale- or white-fringed; knobs of halteres dirty yellowish, yellowish brownish to pale brownish. *Head* with the interocular space on vertex in ♂ about or nearly twice width of ocellar tubercle (which in ♂ is narrowish and elongated) and in ♀ about $2\frac{1}{2}$ to nearly or about 3 times width of tubercle; antennal joint 1 markedly short, only about as long as or scarcely longer or only a little longer than joint 2; joint 3 flask- or bulb-shaped, its broad bulbular base rather rapidly narrowed apicalwards, especially below, to a relatively short slender part which is not well demarcated from broad base, ending apically in a terminal joint nearly or about as long as slender part or longer than joint 2. *Legs* with 1 or 2 spines on middle femora anteriorly near apex below; hind ones with about 3-5 spines below. *Hypopygium* of ♂ differs from that of *uroganus* in having the scoop-like aedeagal process distinctly shorter and broader than long and its medial dorsal prominences more prominent. Last sternite of ♂ (text-fig. 191) with the dorso-apical angles rounded, not acute, and the indentation also more angular.

From 11 ♂♂ and 5 ♀♀ in the South African Museum.

Length of body: about $3\frac{1}{2}$ -6 mm.

Length of wing: about $3\frac{1}{3}$ - $5\frac{1}{2}$ mm.

Locality: Western Cape: Bulhoek between Clanwilliam and Klawer in the Olifants River Valley (Mus. Exp., Oct. 1950) (types). Namaqualand: Kamieskroon (Mus. Exp., Nov. 1936). Tankwa Karoo: Renoster River (Mus. Exp., Nov. 1952).

This species appears to be slightly variable in size, in the intensity of the dark hairs on pleurae and the infuscation in the wings, especially in the ♀. The specimens from Namaqualand constitute a slight form which differs from the typical form in being larger, about $4\frac{1}{2}$ -6 mm. long, in having the infuscated parts in the wings in ♀ slightly paler yellowish brown, less of base of second basal cell infuscated and also without fuscous borders to apical veins of latter cell, less of base of anal cell infused, a larger clearer spot in first basal cell, slightly less uniformly dark hairs on pleurae and with apparently less black scaling on abdomen.

From *uroganus* it may at once be distinguished by the more cretaceous white scaling and not silvery white ones on last tergite in ♂, slightly duller white scales on frons which do not extend densely down the face, distinct white scales and not yellowish ones on sides of tergite 1, paler and not ochreous yellowish scaling



TEXT-FIG. 191. Side view of last sternite of ♂ *Thyridanthrax cidarellus* n. sp.

on thorax and abdomen, larger spot at base of discoidal cell, clearer costal cell in ♂ and hind tibiae with more numerous and denser spicules in upper outer row.

From *anisospilus* it differs in not having silvery or brassy scales on head in front and in having mainly dark hairs on pleurae.

Thyridanthrax niveifrons n. sp.

Another species in the collections obviously belongs to this section with dense white scales on frons and is not very easily distinguishable from *anisospilus*, *uroganus* and *cidarellus*. It however agrees with and differs from these in the following respects:

Body mainly black; pleurae more blackish brown or brownish; legs dark blackish brown or almost black, the tibiae scarcely paler, only front ones a little paler; antennae entirely black or sometimes with joint 1 reddish; buccal cavity dark brown. *Vestiture* with the hairs in collar above, in upper part of mesopleural tuft, greater part of metapleural tuft, on sides of tergite 1 and base of 2, on last tergite (♂) and on entire venter (♂) snow-white, that on venter gleaming more sericeous; hairs on head in front, on antennae, fine hairs on disc of thorax, longer ones at base, thoracic and scutellar bristles, rather dense hairs on sides of abdomen and those on abdomen above, rather longish posteriorly, and those on last tergite and sternite in ♀ black; some short bristly hairs in front of black prealar bristles, bristly hairs in antero-upper part of mesopleural tuft, hairs in propleural and prosternal tufts, on rest of pleurae and lower part of metapleural tuft luteous to fulvous brownish, but with an admixture of whitish ones and hair-like scales and some dark chocolate-brownish hairs on prosternal part and on coxae; streak of dense hair-like scales on each side of thorax above and dense tuft just below wing-base contrastingly snow-white; scales on frons in ♂ broadish, rather dense and snow-white, not shining or glittering silvery as in *anisospilus*; those in ♀ more greyish or yellowish; those on face dull greyish yellowish in both sexes, without dense white ones down middle as in *uroganus*; scales on body above and on venter distinctly more slender, narrower and longer than in preceding three species, tending to be more hair-like; finer ones around hind border of scutellum, on tergite 1, across basal half on sides of 2, densely across more than basal half of entire 3, across base of 4 (almost uninterrupted discally) and across 6 and 7 snow-white; white ones laterally opposite these tergites longer, more tuft-like; scaling across discal part of tergite 2 on each side, across hind margins of 2, 3 and 4 and to a lesser extent 5 black; rest of tergal surfaces above, not occupied by white and black scaling, covered with dull greyish, yellowish to some ochreous ones (across 2 and 5); scaling on pleurae and coxae, apart from more fulvous ones, fulvous greyish to brownish; scaling on venter markedly dense, mainly white, but with pale greyish yellowish or yellowish white ones as well, more evident in ♀; scaling on legs mainly dull yellowish or greyish yellowish. *Wings* mainly vitreous hyaline, iridescent; base

blackish brown and costal cell a little paler, more subopaquely yellowish; veins brownish and without any distinct indications of spot-like infusions on cross veins; first posterior cell slightly narrowed apically, sub-spindle-shaped; squamae whitish, white-fringed; knobs of halteres almost white. *Head* with the interocular space on vertex in ♂ about twice width of ocellar tubercle and in ♀ about $2\frac{1}{2}$ times width of tubercle; antennal joint 3 bulb-shaped basally, rather rapidly narrowed below from bulbular base, the slender part rather thick, slightly longer than or sometimes about as long as bulbular base, ending in a longish and slender terminal joint, much longer than joint 2; face slightly less sharply conical than in *anisospilus*. *Legs* with about 2 spines on middle femora in front and some small spinelets behind apically below; hind femora with about 4–6 spines below.

From 2 ♂♂ and a ♀ in the South African Museum.

Length of body: about 6–7 mm.

Length of wing: about $5\frac{1}{2}$ – $6\frac{1}{2}$ mm.

Locality: Wallekraal in Namaqualand (Mus. Exp., Oct. 1950).

Easily recognized and distinguished from the three preceding species by the rather slender, narrow and longish, more hair-like scales on abdomen above and below.

Thyridanthrax zinnii n. sp.

Body mainly black; antennal joints 1 and 2 (more especially 1) reddish; scutellum entirely black or with its hind border sometimes rufous to a variable extent; legs very dark piceous or black. *Vestiture* with the hairs on head in front, fine ones on thorax above, prealar, postalar and scutellar bristles, hairs on sides of abdomen from apical part of tergite 2 to apex, those across hind margins of last three tergites in ♀, some intermixed in propleural tuft, intermixed ones on mesopleuron and pleurae, those on coxae and those on last two sternites in ♀ black; hairs in collar above and in upper part of mesopleural tuft straw-coloured; those in propleural tuft and on rest of mesopleuron fulvous yellowish; upper or greater upper part of metapleural tuft and hairs on sides of tergite 1 snow-white; hairs on more than basal half of venter pale, gleaming sericeous whitish or yellowish; scaling on head in front gleaming greyish whitish to yellowish, but also with some black scales; that behind eyes snow-white; that on thorax above mainly yellowish, but whitish or white basally and on postalar calli; streak of hair-like scales on sides above conspicuously snow-white like the scales across hind border of scutellum; scaling on abdomen above composed of yellowish or ochreous ones, snow-white ones and some black ones; the white ones densely on sides basally of tergite 2, across at least basal half of 3, on sides basally of 4, across base of 6 and on entire 7; the yellowish or ochreous ones present mostly on tergite 2 and to a lesser extent across the other tergites not occupied by white or dark ones; the latter not very conspicuously developed, mostly present across hind borders of tergites 2 and 3, base and apical margin of

4 and scattered across hind margins of rest of tergites and to a certain extent on sides of abdomen; scaling on venter mainly whitish; that on legs mainly whitish, but with much black scaling on anterior faces. *Wings* slightly greyish hyaline; base, costal cell and more or less basal half of first basal cell in ♀ opaquely yellowish or greyish yellowish; veins brownish and yellowish; slight spot-like indications distinctly present on base of second vein, middle cross vein, base of discoidal cell and to a much lesser extent on basal cross vein of fourth posterior cell; second vein not much recurved apically; first posterior cell slightly narrowed apically; middle cross vein at about between basal fourth and a little less than basal third of discoidal cell; axillary lobe well developed, broad; squamae whitish or yellowish white, white-fringed; knobs of halteres whitish. *Head* with the interocular space on vertex in ♀ quite or nearly 3 times width of ocellar tubercle; antennal joint 3 subconical or almost pestle-shaped, not very rapidly dilated below to bulbular base, its terminal joint slightly longer than joint 2. *Legs* with 1 or 2 spines on anterior lower part and about 2 smaller ones on posterior lower part of middle femora; hind ones with about 5 or 6 spines below.

From 2 ♀♀ in the South African Museum.

Length of body: about 8 mm.

Length of wing: about 8 mm.

Locality: Koup Karoo: Dikbome in the Laingsburg Div. (Zinn, April–May 1950).

Resembles the ♀ of *niveifrons*, but differs in having slightly broader and less hair-like scales on body above, sparser hairs and scales on sides of abdomen, slightly more yellowish hair in upper part of mesopleural tuft, absence of luteous bristles in notopleural part, in having distinct spot-like infusions on cross veins in basal half of wings and a broader interocular space on vertex.

Thyridanthrax abruptus (Lw.)

(Loew, p. 90, *Ofv. Königl. Vet. Akad. Forh. Arg.*, xvii, 1860 (as *Anthrax*);

Loew, p. 219 and tab. ii, fig. 21, *Dipt. Faun. Südaf.*, i, 1860 (as *Anthrax*); Bezzi, p. 627, *Trans. Ent. Soc. Lond.*, 1911 (1912); Lamborn, p. 256, *Bull. Ent. Res.*, vi, 1915; Bezzi, in part, p. 134, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, in part, p. 202, *The Bombyliidae of the Ethiopian Region*, 1924; Austen, in part, p. 157 and fig. 7 a, *Bull. Ent. Res.*, xx, 1929; Swynnerton, p. 230, *Trans. Roy. Ent. Soc. Lond.*, lxxxiv, 1936; Fiedler and Kluge, pp. 399 and 400, *Onderstepoort Journ. Vet. Res.*, 26, No. 3, 1954.)

(Syn. = *lineus* Loew, p. 222, *Dipt. Faun. Südaf.*, i, 1860 (as *Anthrax*);

Bezzi, in part, p. 134, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 201, *The Bombyliidae of the Ethiopian Region*, 1924; Austen, p. 161 and figs. 9 a and 10 a, *Bull. Ent. Res.*, xx, 1929; Swynnerton, p. 230,

Trans. Roy. Ent. Soc. Lond., lxxxiv, 1936; Hesse, p. 174, *Ann. Transv. Mus.*, xvii, 1936 (as *Hemipenthes*); Fiedler and Kluge (reference to synonymy), p. 400, *Onderstepoort Journ. Vet. Res.*, 26, No. 3, 1954.)

In the collections before me this species is very richly represented by several hundreds of specimens of which 359 have been bred from puparia of the tsetse fly *Glossina morsitans* and 12 from *Glossina pallidipes* and *Glossina brevipalpis*. The rest of this very long series were collected in the field in various parts of Southern Africa by various institutions and collectors. With the exception of a few specimens submitted by the late Mr. Cuthbertson of the Agricultural Department of Southern Rhodesia, some specimens sent by Dr. R. du Toit of the Division of Veterinary Services and some odd specimens bred by others, all the pupal parasites and laboratory-bred specimens were bred by Mr. W. L. Williams of the Agricultural Department at Salisbury from puparia of *Glossina morsitans* collected in Southern Rhodesia and which he very kindly submitted for identification and purposes of study. From a careful examination of this comprehensive series of both laboratory-bred material and specimens collected in the field, it is evident that this species is not only variable but that it, like some other species described in this revision, shows a remarkable sexual dimorphism in which the ♂ differs entirely from the ♀ in not having the wings infuscated, with the result that the former sex has been described as a separate and distinct species in literature. That these clear-winged ♂♂ actually do belong to the same species as the ♀♀ with the wing-pattern is proved by the fact that among the hundreds of laboratory-bred specimens no ♀♀ with clear wings have been bred out and that, allowing for slight individual variations, all the external characters are specifically identical, and their pupal skins are also identical. Moreover with the exception of 6 ♂♂ and 3 ♀♀ of the closely related *lugens* (see under that species) which sometimes also parasitizes the puparia of *Glossina morsitans* and of which both sexes have infuscated wings, no ♂♂ with infuscated wings are represented among the very large number of bred ♀♀ which could be allocated or assigned specifically to the latter. It is thus very significant that in a very large series of specimens bred from *Glossina*-puparia there is a very large number of ♂♂ with clear wings and no corresponding ♀♀ with clear wings, but a very large number of ♀♀ differing from these clear-winged ♂♂ practically only in having a typically infuscated type of wing-pattern. Moreover among the rest of the long series collected in the field all over South Africa, where species of *Glossina* do not occur, clear-winged ♂♂ have been collected in the same localities and at the same time as the ♀♀ with infuscated wings. There appears to be no doubt that this species of clear-winged ♂ is cospecific with this infuscated-winged ♀. A careful comparison with Loew's descriptions and Austen's redescrptions of *abruptus* and *lineus* also leaves no doubt that these ♀♀ with infuscated wings and the clear-winged ♂♂ belong to these two species respectively and that on account of their specific identity and the fact that Loew in his original descriptions described *abruptus* a page ahead of *lineus*, the latter name must be sunk as a synonym of the former. In view of the fact that no less than

about twenty different South African species have ♀♀, and about twelve of these also ♂♂, with similarly infuscated wings much confusion as to the identity of *abruptus* probably exists in the literature dealing with records from Africa. A case in point is the supposed ♀-specimen of *lineus* recorded from Faradje in the Congo by Curran (p. 40, *Bull. Amer. Mus. Nat. Hist.*, lvii, 1927-8) which constitutes a unique record of a species (*lineus*) which is so far represented only by ♂♂ in all the collections. As *lineus* s. str. has now been shown to be the ♂ of *abruptus* there is no doubt that Curran's ♀-*lineus* will eventually prove to be an entirely different species, belonging to some clear-winged form. On the other hand there is also no doubt that the ♂-specimens with infuscated wings which Austen referred to *abruptus* (p. 158 and fig. 7 b, *Bull. Ent. Res.*, xx, 1929) are ♂♂ of *lugens* (Lw.) or northern forms of the latter species. The characters of *abruptus*, as based on the long series before me, are as follows:

Body black; antennal joints 1 and 2 predominantly dark or black, at least above; scutellum usually entirely black, though the hind margin when denuded may sometimes be very obscurely piceous reddish in some ♂♂; sides of abdomen never reddish; pleurae sometimes castaneous to chocolate-brownish; legs sienna-brownish, dark brownish to blackish brown or black, the hind ones and upper surfaces of the others usually more constantly dark; tibiae, especially front ones, usually paler. *Vestiture* with the hairs on head in front entirely black; hairs in collar and upper part of mesopleural tuft straw-coloured yellowish, yellowish to fulvous yellowish or even slightly orange yellowish; hairs on pleurae varying from yellowish, yellowish fulvous, yellowish brownish to fulvous brownish, but always with black or very dark hairs intermixed on propleural and prosternal parts, a black tuft of variable extent in lower part of mesopleural tuft and black hairs on rest of pleurae, on coxae and sometimes also in anterior part of mesopleural tuft which in the Karoo forms are usually more yellowish fulvous or white; hair-like scaling on pleurae fulvous yellowish, orange fulvous or fulvous brownish; erect hairs on thorax above blackish brown or black; streak of hair-like scales on sides conspicuously white; some prealar, the postalar and scutellar bristles black; hairs across hind margins of tergites, excepting dense white tuft on each side basally, mostly black, but with those across tergite 7 in ♂ and fine scattered ones across discal part in basal half in ♂, especially of some forms, pale, gleaming sericeous yellowish; hairs on venter and some intermixed ones on sides sericeous whitish or yellowish, those posteriorly, especially in ♀, usually dark or black; hairs and longish, flattened scales on sides of hinder part of tergite 2, lower and hinder part of 3 and sides of 4 and 5 rather long, conspicuously tuft-like and black, but in some forms with much pale hair and scaling on these sites as well; scales on head in front greyish whitish, greyish yellowish, dull yellowish, yellowish brownish to even slightly reddish brownish or orange, never concentrated in a dense patch, usually absent from a dark-scaled or blackish spot-like area on each side of frons before middle; whitish scales behind eyes usually broad and patch-like on sides, becoming more yellowish on occiput; fine scaling on thorax above dull

yellowish, reddish brownish to orange brownish, sometimes separated by bands of darker scaling; that on scutellum greyish yellowish to orange yellowish or reddish brownish, with some dark ones basally and more whitish ones across hind border; scaling on abdomen above, other than the transverse bands of snow-white ones across bases of tergites 3 and 6, entire 7 and on extreme sides at base of 2 and sometimes on extreme sides basally of 4, composed of yellowish, ochreous yellowish to orange or brownish yellowish and black scales, the black ones more or less across base or middle and hinder part of tergite 2 to a variable extent and across bases of 4 and 5, the pale bands being variable in width; scaling on venter greyish whitish, greyish yellowish to ochreous yellowish, but with more or less three rows of segmental patches of black scales, sometimes very extensive; scaling on legs predominantly greyish yellowish to ochreous yellowish, but with some dark or brownish ones on upper surfaces of front and middle femora and outer surfaces of hind ones. *Wings* in ♂, as described and figured for *lineus* by Loew and Austen (cf. text-fig. 10 a, loc. cit.), glassy hyaline, the base and hinder part of costal cell blackish brown or yellowish brown; wings in ♀ (cf. Austen, text-fig. 7 a, loc. cit.) with the anterior basal and costal part brownish to blackish brown, this infuscation extending from extreme base or basal part of axillary lobe across about or near middle or even slightly beyond middle of anal cell, across basal cross vein of fourth posterior cell, base of discoidal cell to a variable extent up to middle cross vein and base of second vein and then for some distance in basal part of marginal cell beyond base of second vein to a variable extent and sometimes to nearly opposite end of false vein in costal cell; usually with a subopaquely whitish spot at base of third vein; second vein and upper branch of cubital fork rather markedly sinuous, the forward bend in apical part of former usually very pronounced; middle cross vein tending to be nearer, or at, middle of discoidal cell; the latter rather broad, characteristically shaped in ♂, the apical part of its upper vein being rather markedly convexly curved to base of second posterior cell, less so in ♀, its lower vein S-curved in both sexes; first posterior cell broad, but usually distinctly narrowed apically, sub-spindle-shaped; squamae pallid or yellowish posteriorly, pale-fringed; halteres yellowish, their knobs paler, pallid or yellowish whitish, sometimes almost whitish. *Head* with the interocular space on vertex in ♂ about $1\frac{1}{2}$ to nearly or even 2 times width of ocellar tubercle and about $2\frac{1}{2}$, or a little more or less, times width of tubercle in ♀; face sharply conical; antennal joint 1 not very much more than twice length of 2; joint 3 usually conical or subconical, tapering gradually or only slightly more rapidly on inner side, ending apically in a longish terminal joint of variable length, but usually at least as long as joint 2. *Legs* with 2 longish spines on middle femora in front and a variable number of spinelets on hinder part; hind femora usually with 4 or 5, but as many as 7, spines below and at least one or a few spines apically above; front tarsi not very densely hairy, more shiny and slightly compressed apically, their claws minute. *Hypopygium* of ♂ (text-fig. 192, right) with the aedeagal process provided apically and ventrally on each side with a

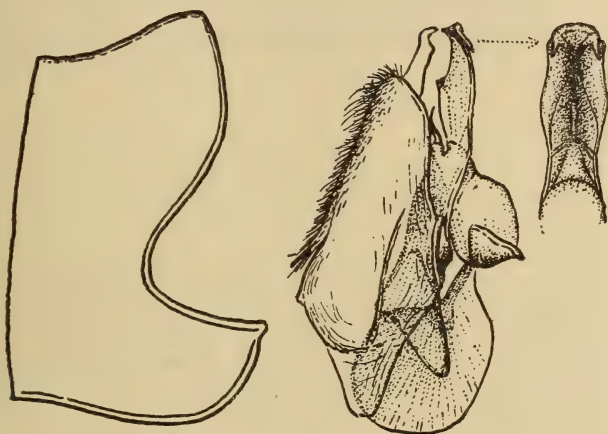
well-developed hook or spine. Last sternite of ♂ shaped as shown in text-fig. 192, left.

In the British, Transvaal, Durban and South African Museums, the Division of Veterinary Services at Onderstepoort, the Commonwealth Institute and the Agricultural Department of Southern Rhodesia.

Length of body: about 5-10½ mm.

Length of wing: about 5-11 mm.

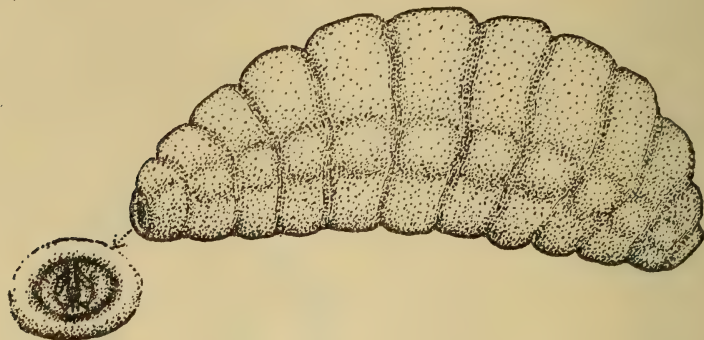
Locality: Over most of Southern Africa, including South-West Africa, the Kalahari, Bechuanaland, Northern and Southern Rhodesia, Zululand and Portuguese East Africa from October to March.



TEXT-FIG. 192. Left: Side view of last sternite of ♂ *Thyridanthrax abruptus* (Lw.). Right: Side view of hypopygium and ventral view of aedeagal process of ♂ of same species.

This species is one of the commonest. Bombyliids in Southern Africa, occurring in all types of environment except in the Western Cape Province. In the Karoo and other semi-arid parts it invariably settles on the ground between bushes and during the flowering season it visits the flowers of various succulents and composites. In tsetse-infested parts of Rhodesia, Portuguese East Africa and Zululand it is the important Bombyliid parasite in the puparia of *Glossina morsitans* (the carrier of human and animal Trypanosomes) and also in puparia of *G. pallidipes* and *G. brevipalpis*. It is not known what other species of Diptera this Bombyliid parasitizes in the tsetse-free areas of its distribution. Like other widely distributed species of Bombyliids it shows local, regional and in this case probably also physiological, variation. The form (probably the more typical form) parasitizing tsetse flies and also that occurring in the more humid eastern and south-eastern coastal regions differ from the more atypical forms occurring in the drier parts in having the infuscation in marginal cell in ♀ extending farther apically to opposite or nearer end of false vein, more dark hair on

pleural parts and slightly narrower bands of yellow or ochreous scaling on the abdomen. In size this species also appears to vary in accordance with the size of the host; specimens bred from the larger *Glossina brevipalpis* being larger than those bred from the smaller puparia of *pallidipes* and *morsitans*.



TEXT-FIG. 193. Side view of larva of *Thyridanthrax abruptus* (Lw.) and front view of its anterior end.

Larva: The larva which develops inside the puparia of *Glossina morsitans* and of which Mr. Williams forwarded a few specimens is shown in text-fig. 193. Its average length is about $6-6\frac{1}{2}$ mm. and its breadth about $2.45-2.76$ mm. Twelve segments are visible. No trace of spiracles are to be seen. The visible mouth parts are in the form of median chitinous rods ending in a sharp stylet-like point on each side. These rods are situated in a central prominence, ending on each side anteriorly in a minute papilla-like prominence (cf. left of text-fig. 193).

Pupal skins: A large number of pupal skins have also been forwarded by Mr. Williams. These vary in length from about $4\frac{1}{2}$ to 7 mm. and in width from about 2 to $2\frac{1}{2}$ mm. They do not differ much from those of other species of *Thyridanthrax*. The apical cephalic spines below are much shorter than in *lloydi* and in some specimens, especially ♂♂, they are even shorter than in *salutaris*, being merely in the form of raised, transverse, carinate ridges. The second pair of spines are bluntly pyramidal, tending to be less raised in some ♂♂.

Thyridanthrax abruptoides n. sp.

(Syn. = *leucoproctus* Bezzi, in part, nec Loew, p. 133, *Ann. S. Afr. Mus.*, xviii, 1921; Syn. = *linea* Bezzi, nec Loew, p. 134, *Ann. S. Afr. Mus.*, xviii, 1921.)

This species very closely resembles *abruptus* and also has a clear-winged ♂ and a ♀ with a similar wing-infuscation. Compared with *abruptus* it however differs in the following respects:

Head with the antennal joint 1 reddish or light red; antennal joint 3 distinctly not conical, more club-shaped, more rapidly broadened or bulging below into a bulb-shaped base, its slender part more distinctly demarcated and its terminal joint distinctly much longer, subequal in length or only a little shorter or sometimes even slightly longer than slender part or more than twice length of antennal joint 2 (in *abruptus* much shorter than slender part and not or only a little longer than joint 2). *Vestiture* with shorter, more inconspicuous, relatively less dense or bushy black tufts of hairs and scales on sides of abdomen; pale scaling behind eyes in form of a rather conspicuous circum-occipital circlet or ring of dense, snow-white scales (white only on sides in a patch in *abruptus*). *Wings* in ♂ hyaline as in ♂ of *abruptus*, only base and lower part of costal cell yellowish brown to blackish brown as in *abruptus*, but with more distinct, though faint, spot-like infuscations at base of third vein, base of second vein, on middle cross vein and at base of discoidal cell; wings in ♀ similarly infuscated to those of ♀-*abruptus*, but the infuscation distinctly less extensive, extending only for a much shorter distance apically in marginal cell beyond base of second vein, occupying very much less of base of discoidal cell (only its extreme base), much less or only about basal third or even less of anal cell and very much less of base of axillary lobe; first posterior cell in both sexes not, scarcely or very much less narrowed apically; middle cross vein distinctly very much nearer base of discoidal cell, even in ♀, and latter cell less roundly or convexly curved apically. *Hypopygium* of ♂ with the aedeagal process (cf. text-fig. 196, a) differently shaped.

From *anisospilus* it differs in the absence of a conspicuous patch of silvery or bronzy scales on frons, more extensive dark hair on propleural parts, fewer white scales on sides of tergite 4 and in ♀ the more extensive infuscation in wings which also occupies the entire first and second basal cells.

From 49 ♂♂ and 37 ♀♀ (types and paratypes in the South African Museum, paratypes in the British, Rhodesian and Transvaal Museums, and the Commonwealth Institute).

Length of body: about 4–7 mm.

Length of wing: about 4–7 mm.

Locality: Southern and South-western Cape: Stellenbosch (Brauns, 10 Oct. 1926 and 9 Nov. 1926); Paleisheuvel (Mus. Exp., Nov. 1948) (types); Citrusdal (Mus. Exp., Nov. 1948); Citrusdal-Clanwilliam in the Olifants River Valley (Mus. Exp., March 1935 and Oct.–Nov. 1931); Bulhoek between Clanwilliam and Klawer (Mus. Exp., Oct. 1950); Michell's Pass (Mus. Exp., Oct. 1934); Ceres (Turner, 27 Oct.–1 Nov. 1920); upper sources of the Olifants River, Ceres Div. (Mus. Exp., Dec. 1949); east of Pakhuis Pass (Mus. Exp., Sept. 1947). Moordenaars Karoo: Lammerfontein in the Laingsburg Div. (Mus. Exp., Oct. 1952); Moordenaars Karoo in the Laingsburg Div. (Mus. Exp., March 1939). Koup Karoo: near Laingsburg (Mus. Exp., Feb. 1938); Rooinek Pass near Laingsburg (Mus. Exp., Oct. 1952); Klaarstroom in the Prince Albert Div. (Mus. Exp., Oct. 1952). Namaqualand: Kamieskroon (Mus. Exp., Sept. 1930 and Nov. 1936); Bowesdorp (Mus. Exp., Sept. 1941).

and Nov. 1931); Kamieskroon-Springbok (Mus. Exp., Oct. 1939); Klipvlei near Garies (Mus. Exp., Nov. 1931). Bushmanland: Pofadder (Mus. Exp., Oct. 1939). Little Karoo: Vanwyksdorp (Mus. Exp., Oct. 1937); Oudtshoorn-Zebra (Mus. Exp., Oct. 1951). South-eastern Karoo: Uniondale Dist. (Mus. Exp., Oct. 1952); Bo-Kouga in the Uniondale Dist. (Mus. Exp., March 1954). Griqualand West: Vanniekerkshoop (Mus. Exp., Oct. 1939); north of Postmasburg (26 miles) (Mus. Exp., Oct. 1939); Warrenton (Mus. Exp., Oct. 1939); Vryburg (Mus. Exp., Oct. 1939). East and North-eastern Transvaal: Barberton (Munro, Aug. 1913); Zoutpansberg Dist. (Breyer, July-Aug. 1916). Natal: Durban (Cockerell, 17 Oct. 1931). Southern Rhodesia: Bulawayo (Nat. Mus. of S. Rhodesia, 5 Oct. 1924 and 7 July 1938); Salisbury (Tucker, Jan. 1917); Shangani (Mackie, May 1932).

One ♂-specimen from Salisbury was wrongly identified as *leucoproctus* by Bezzi, a species which differs from this species in having dense silvery or bronzy scales on frons anteriorly, slightly more subconical third antennal joints and relatively narrower head in front and face. Two other ♂-specimens on one pin were wrongly identified as two ♀♀ of *lineus* by Bezzi, a species which is really only the ♂ of *abruptus* (see under the latter species).

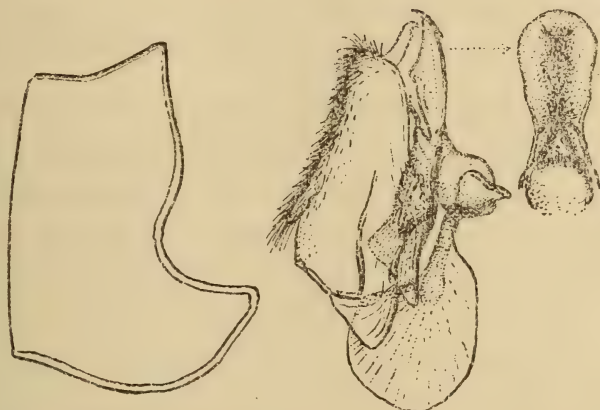
Thyridanthrax lugens (Lw.)

- (Loew, p. 91, *Ofv. Königl. Vet. Akad. Forh. Arg.*, xvii, 1860 (as *Anthrax*);
 Loew, p. 220 and tab. ii, fig. 20, *Dipt. Faun. Südaf.*, i, 1860 (as
Anthrax); Bezzi, in part, p. 135, *Ann. S. Afr. Mus.*, xviii, 1921;
 Bezzi, in part, p. 202, *The Bombyliidae of the Ethiopian Region*, 1924).
 (Syn. = *abruptus* Austen, in part, nec Loew, p. 157 and figs. 6 a and 7 a,
Bull. Ent. Res., xx, 1929.)

In the collections before me there is a very long series of ♂♂ and ♀♀ in which both sexes have a wing-pattern like the ♀ of *abruptus*, but which nevertheless differ from the latter species not only in certain more or less fairly constant characters, but in the shape of the aedeagal process and in other details of the hypopygium of the ♂. There is no doubt about the specific identity of the ♂♂ and ♀♀, and as the ♀♀ more or less agree with Loew's description of *lugens*, these specimens are provisionally referred to Loew's species notwithstanding Austen's contention that *lugens* is synonymous with *abruptus*. As Austen was not aware of the specific identity of the ♂-*lineus* and the ♀-*abruptus* and the specific differences between the ♂ of *abruptus* (*lineus*) and the ♂ of this species (*lugens*) he was quite justified at the time in concluding that the ♀-*abruptus* and the ♀-*lugens* appear to be specifically identical, especially after also bearing in mind the fact that species of *Thyridanthrax* are often subject to great individual variation. In many collections the ♂♂ of *lugens* have no doubt been placed together with ♀♀ of *lugens* and ♀♀ of *abruptus* under the impression that they all belong to the same variable species.

From *abruptus* s. str. the ♂ and ♀ of *lugens* differ in the following respects:

Body with the greater part or hinder part or hind margin of scutellum usually reddish or reddish brown; sides of tergites 2 and 3 in most ♂♂, and even in some ♀♀, also reddish to a variable extent, sometimes even entire sides of abdomen in ♂ and usually also hind margins of posterior tergites reddish; antennal joints 1 and 2 in most specimens light reddish, even if scutellum be only obscurely reddish apically in certain forms, and with joint 1 usually and relatively much longer than in *abruptus*, sometimes more than, or much more



TEXT-FIG. 194. Left: Side view of last sternite of ♂ *Thyridanthrax lugens* (Lw.). Right: Side view of hypopygium and ventral view of aedeagal process of ♂ of same species.

than, twice as long as 2. *Vestiture* with the hair and scaling very similar, but with a tendency for the pale hairs on pleural parts, even in the typical Cape form, to be more numerous or more extensive in most specimens and the scales across hind margin of scutellum to be more frequently snow-whitish like the streaks on sides of thorax; pale scaling behind eyes in form of a conspicuous circum-occipital ring of dense white ones, not greyish yellowish on occiput as in *abruptus*; black hairs and longish dark scales on sides of abdomen distinctly shorter or much shorter, less conspicuously tuft-like or bushy. *Wings* in the ♂ (cf. Austen, fig. 7 *b*, p. 159, loc. cit.) always with a ♀-*abruptus*-like pattern as in ♀, but with the infuscation in marginal cell more usually not extending much beyond base of second vein and, if it does extend some distance beyond, antennal joints 1 and 2, scutellum and sides of tergites 2 or 3 are reddish to a variable extent; wing-pattern in ♀ like that of ♀ of *abruptus*, but base of discoidal cell less infused and also much less of base of axillary lobe is infused; second vein in both sexes usually slightly less sinuous; discoidal cell in most cases with the apical part of its upper vein not so markedly convexly curved to base of second posterior cell; middle cross vein more often nearer base than middle of discoidal cell; squamae yellowish; halteres more yellowish or deeper yellowish, their

knobs less pale. *Legs* with the modified front tarsi duller, less shiny, more hairy and slightly less compressed apically. *Hypopygium* of ♂ (text-fig. 194, right) differing from that of *abruptus* (cf. text-fig. 192, right) chiefly in having a differently shaped aedeagal process, with very much smaller and more insignificant hooks apically below. Last sternite of ♂ shaped as shown on left in text-fig. 194, being slightly more pointed apically than in *abruptus*.

In the British, Transvaal and South African Museums, in the Commonwealth Institute and Agricultural Department of Southern Rhodesia.

Length of body: about 4–10 mm.

Length of wing: about 4–9½ mm.

Locality: All over Southern Africa including the South-western Cape, South-West Africa and Southern Rhodesia.

This species is even more variable than *abruptus*, differing in size, the colour of the hairs on pleurae, the extent of the reddish on scutellum and on sides of abdomen and the extent of the infuscation in marginal cell in wings of ♂. In a small form from the Karoo and the dry interior of South Africa the red on scutellum is almost absent or scarcely visible even at apex of scutellum, and that on sides of tergite 2 also wanting or much reduced even in some ♂♂. In some other forms the black hairs on pleurae are even more extensive than in typical form.

Like *abruptus* this species also parasitizes the puparia of *Glossina morsitans* in the north-eastern parts of its geographical distribution, but apparently to a very much lesser extent. In comparison with the hundreds of specimens of *abruptus* bred from puparia of this species of tsetse fly in the collections before me only 6 ♂♂ and 3 ♀♀ of *lugens* have been bred from puparia collected in the field by Mr. Williams and others. It apparently also attacks *Glossina austeni* for a ♂ and ♀ bred from puparia of this latter species and submitted by Dr. J. A. Travassos Santos Dias of Mozambique, though much denuded, agree with *lugens*. Representatives of the small Karoo form, with the red on scutellum much reduced or even absent, were also reared from the so-called 'army worm', caterpillars of the moth *Loxostege frustalis*, collected at Middelburg in the Cape Province by Mr. S. J. S. Marais of the Division of Entomology. As in the case of *leucoproctus* which was also bred from the same caterpillars, the true host is probably some Dipterous parasite of the moth caterpillars and not the caterpillars themselves. Among the more or less distinct forms is a ♂-specimen in the Agricultural Department, 'Ac.P.4560, Pretoria, Aug. 1938', which Dr. W. G. H. Coaton reared from a Muscid fly found in the nest of *Termes badius*. This specimen differs from the more common forms of *lugens* in having more dark scaling on head in front and on abdomen above, distinctly more black hairs and dark scaling on pleural parts and in metapleural tuft and much darker legs. From all these specimens it is therefore quite evident that *lugens* parasitizes various and different species of Diptera in various parts of its wide geographical range.

The pupal skins of the bred specimens do not differ much from those of *abruptus*, but the pupal skin of a ♀-specimen bred from some other species of

Dipteron by Professor J. T. Potgieter of Stellenbosch, from material collected at Kimberley, is larger and has the first pair of cephalic spines very much longer, much produced and very prominent, and the other spines also more sharply dentate. The pupal skin of the form mentioned above (Ac.P.4560) also has longish anterior cephalic spines.

These marked differences in the cephalic spines of the pupa of *lugens* are probably structural adaptations or modifications to enable the pupa to wriggle through a deeper layer of soil or to break through the pupal skin of a slightly different type of Dipterous host. In these and other Bombyliid parasites which develop in different hosts belonging to different groups there are probably not only physiological but certain structural variations.

Thyridanthrax monticolus n. sp.

This species so closely resembles *lugens* that it may almost be considered as only representing a montane variety of the latter, but as the typical *lugens* is also found in the same type of environment and as specific differences in most species of *Thyridanthrax* are on the whole very slight, this species may be considered as distinct from *lugens*. From the latter it differs in the following respects:

Body without any red on sides of abdomen, the hind margins and sides of posterior tergites, even in ♂, being black or dark; legs distinctly much darker, very dark piceous or black, much darker than in even dark-legged forms of *lugens*. *Vestiture* with all or most of the hairs and scaling on pleural and sternal parts, on coxae and lower anterior part of metapleural tuft black, whereas even in dark-haired forms of *lugens*, the propleural tuft and hairs on hinder part of mesopleuron and metapleural tuft are mainly or more extensively yellowish or fulvous; pale upper part of mesopleural tuft less extensive and deeper fulvous or even more orange fulvous; black hairs in hinder part of collar above more extensive and slightly more conspicuous; last tergite even in ♂ with black hairs (pale-haired in ♂ of *lugens*); black scaling on abdomen above distinctly more developed, more extensive and the ochreous scales fewer or less extensive, present in distinctly much narrower bands across middle of tergites 2-5; black scaling on sides of abdomen also more extensive, with fewer pale or ochreous ones intermixed, especially sides of middle tergites; scaling on venter on the whole darker, either with more extensive brownish ochreous ones or with more dark ones and fewer pale ones; scaling on legs mainly or entirely dark or black and those on posterior tibiae distinctly shorter and less dense; spines of ovipositor of ♀ black, not reddish golden. *Wings* tending to be shorter relative to length of body; squamae distinctly more brownish, not pallid or yellowish, and their fringe slightly more yellowish; halteres more brownish, with darker brownish or dark brown knobs. *Hypopygium* of ♂ resembling that of *lugens* (cf. text-fig. 194).

From 2 ♂♂ and 2 ♀♀ in the South African Museum.

Length of body: about $7\frac{1}{2}$ - $8\frac{1}{2}$ mm.

Length of wing: about 7-8 mm.

Locality: Western Cape; upper sources of the Olifants River near Ceres (Mus. Exp., Dec. 1949) (holotype); Boskloof near Clanwilliam, also along the Olifants River Valley (Mus. staff, Sept. 1936) (allotype); Wit River Valley in Bain's Kloof near Wellington (Mus. Exp., Dec. 1949); Babylon's Tower (Babilonstoring) near Caledon (Mus. staff, March 1939).

This species seems to occur at high altitudes in mountain valleys.

Thyridanthrax griseifrons n. sp.

Body, including scutellum, mainly black; pleural parts more dark brownish, with the sutures more reddish brownish; antennal joints 1 and 2 and sometimes also 3, but often only 1 (and 2 below) pale reddish brownish, sometimes with only 1 pale reddish; buccal rims and streak below antennae yellowish or dirty yellowish; legs muddy brownish, sienna-brownish, dark brownish to blackish brown. *Vestiture*, especially that on sides of abdomen, not very dense or long; hairs on head in front, fine ones on thorax above, prealar, postalar and scutellar bristles, hairs on sides of abdomen from apical part of tergite 2, those across hind margins of tergites 3-6 in ♂ and also across 7 in ♀, numerous hairs anteriorly in propleural and prosternal tufts, some on mesopleuron, bristly hairs on coxae and, in ♀ on venter posteriorly, black; hairs in collar above and in upper part of mesopleural tuft whitish to straw-coloured yellowish; the pale ones in propleural tuft and on hinder part of mesopleuron slightly deeper yellowish or pale fulvous yellowish; metapleural tuft and hairs at base of abdomen on each side snow-white; hairs across hind margin of last tergite in ♂, or greater part of or entire venter in ♂ and on at least basal half of venter in ♀ sericeous whitish; scales on anterior three-quarters of frons and on face rather broadish, white or greyish white or very slightly greyish yellowish in certain lights, gleaming greyish or greasy and rather conspicuous; that across middle of frons black to a variable extent; scaling behind eyes in form of a circum-occipital circlet of dense snow-white ones broadened on sides in a patch behind indentation; fine scaling on thorax above not very dense, greyish yellowish to yellowish brownish, more or less separated by ill-defined streaks of darker ones; that on scutellum greyish whitish, more brownish across base; streak of dense hair-like scales on sides of thorax conspicuously snow-white; scaling on abdomen above composed of conspicuous snow-white ones, yellowish or ochreous ones and black ones; the white ones present on sides of tergite 1, on sides basally of 2, across base of 3 (broader on sides), across base of 6 and on entire 7; black ones present more or less across base of tergite 2 discally, across apical part of tergite 2, across hind margin of 3 and narrowly across bases of 4 and 5; the yellowish or ochreous ones occupying rest of tergal surfaces not occupied by white and black ones; sparse scaling on pleurae and denser ones on coxae greyish yellowish to yellow; dense tuft of hair-like scales (or fine hairs) on upper hind part of mesopleuron velvety brownish or brownish fulvous; scaling on venter rather dense, especially in ♂, greyish whitish or white, but with a streak or a row of segmental patches of

more brownish or dark ones on each side; scaling on legs buff-yellowish, greyish yellowish to dirty whitish. *Wings* hyaline, but more or less similarly infuscated brownish in both sexes, dark brown to blackish brown obliquely and zigzag across from about basal third of anal cell to nearly or about midway between base of second vein and end of false vein in marginal cell in both sexes, but slightly more in latter cell in ♀; the infuscation also occupying base of discoidal cell and extending a very little beyond middle cross vein and base of second vein; second vein and upper branch of cubital fork rather sinuous; first posterior cell slightly, but distinctly, narrowed apically; middle cross vein varying in position from about basal third of discoidal cell to a little or sometimes (♀) even much beyond it; squamae brownish or even dark brown; pale-fringed; halteres yellowish to pale yellowish brown, their knobs dirty yellowish. *Head* with the interocular space on vertex in ♂ about twice or a little less times width of ocellar tubercle and in ♀ a little more than 2 to $2\frac{2}{3}$ times width of tubercle; antennal joint 3 club-shaped or pestle-shaped, sometimes even sub-conical, slightly more rapidly broadened below to bulb-shaped base, the slender part usually longer than bulbular base, rarely as long as, and terminal joint a little longer than joint 2. *Legs* with about 1 or 2 spines beyond middle on middle femora anteriorly below and about 3-5 on hind ones below. *Hypopygium* of ♂ very similar to that of *lugens* (cf. text-fig. 194), with the basal parts also having a slight backwardly-directed, lobe-like process on dorsum; scoop-like part of ventral aedeagal process, however, less elongate, relatively more rounded on sides; basal strut with a distinct or much deeper indentation in its dorsal margin.

From 37 ♂♂ and 21 ♀♀ in the South African Museum.

Length of body: about $3\frac{1}{2}$ -6 mm.

Length of wing: about 4-6 mm.

Locality: Touws River region: between Montagu and Ladismith (Oct. 1937). Moordenaars Karoo in the Laingsburg Div. (Mus. staff, March 1937). Koup Karoo: near Laingsburg (Mus. staff, Feb. 1938); Koup Siding (Mus. staff, Nov. 1939); Merweville Dist. (Zinn, Jan.-Feb. 1947); Buffels River near Merweville (Mus. staff, Oct. 1940); Teekloof on the Escarpment in Beaufort West Div. (Mus. staff, Nov. 1935); Oukloof on the Escarpment in Beaufort West Div. (Zinn and Hesse, Jan. 1949) (types). Nieuveland Karoo on Escarpment in the Beaufort West Div. (Mus. staff, Nov. 1935). Namaqualand: Kamieskroon (Mus. staff, Nov. 1936). Richtersveld: Lekkersing (Mus. staff, March 1935). Little Karoo: Buffels River near Ladismith (Oct. 1937); Oudtshoorn-Zebra (Mus. Exp., Oct. 1951). Great Karoo: Richmond Dist. (Mus. staff, Nov. 1939). Griqualand West: Vanniekerkshoop (Mus. staff, Oct. 1939). North-eastern Karoo: Colesberg (Mus. staff, Nov. 1939); Burghersdorp Dist. (Mus. staff, Oct. 1935). Orange Free State: Goedemoed near Orange River (Mus. staff, Nov. 1939).

This smallish species can only be confused with small forms of *lugens* which have an almost or sometimes even entirely black scutellum. From such forms

it may however be distinguished by the rather characteristic and conspicuous, broadish, whitish scales on frons and face, relatively broader interocular space (which in ♂ of *lugens* is less than 2 times and in ♀ only about 2 or $2\frac{1}{2}$ times width of tubercle), entirely black scutellum and sides of tergite 2, brown squamae, a middle cross vein which in ♂ at least is relatively nearer base and the slightly less densely hairy front tarsi.

From a small ♀ of *abruptus* the ♀ of this species may be distinguished by the slightly broader white scales on frons and face, the circlet of white and not greyish yellowish scales on occiput above, less dense and shorter hairs and scales on sides of abdomen, much shorter hairs on abdomen above, and less extensive infuscation in basal part of anal cell.

The ♀ by itself is also distinguished from ♀♀ of other species with a similar wing-pattern by the characters given in the key.

Thyridanthrax brevifacies n. sp.

(Referred to before described by Fiedler, du Toit and Kluge, pp. 390, 399 and 400, *Onderstepoort Journ. of Vet. Res.*, 26, No. 3, 1954.)

Most of the representatives of this new species were bred from pupae of *Glossina brevipalpis*, *Glossina pallidipes* and *Glossina austeni* collected by the tsetse Fly Control Section of the Division of Veterinary Services in the Hluhluwe and Umfolosi Reserves in Zululand. I am indebted to Dr. R. du Toit of the Tsetse Fly Control Section who very kindly submitted this material for examination and study. The condition of most of the bred material is not too good, but as the characters of this species are sufficiently distinct and as two supplementary ♂♂ and a ♀ from Natal and the Eastern Cape are also available, the diagnostic features of this species may be summarized as follows:

Body mainly black; sides of face below, proboscis, antennae and pleural parts dark brownish or coffee- or chocolate-brownish to a variable extent; sides of face below often paler and anterior part of buccal cavity more yellowish; postalar calli, hind part or more often at least hinder half of scutellum, sides of tergites 2 and 3 (more especially 2) in both sexes, but more extensively in ♂ or sometimes even entire sides of abdomen in ♂ to a variable extent reddish or ferruginous reddish; venter mainly dark, but sometimes, especially in ♂, more reddish across hind margins of sternites; legs coffee-brownish, reddish brown to very dark brown. *Vestiture* with the hairs on frons, antennae and face rather long and dense, black, appearing markedly hirsute; that on rest of body also relatively longer and denser than in most other species; scaling on head in front mostly dull yellowish to greyish yellowish, that on sides of face tending to be more whitish and that across frons just beyond middle and also more sparsely in front of ocellar tubercle black; fine occipital hairs dark; scaling across occiput pale greyish yellowish or greyish, becoming snow-white in a broader patch

behind indentation on sides; hairs in collar above anteriorly, in upper part of mesopleural tuft and numerous ones or greater part of propleural tuft straw-coloured yellowish to yellow, the latter tuft usually more fulvous; rest of hair on pleurae and also intermixed in propleural tuft, those on prosternal part, hairs on coxae, longish ones in posterior part of collar, fine ones on thorax above, prealar, postalar and scutellar bristles, numerous hairs in anterior part of meta-pleural tuft, those on abdomen above, on sides of tergites from apical half of tergite 2, and in ♀ on posterior part of venter, black; metanotal tuft conspicuously black; metapleural tuft itself whitish above and more fulvous or yellowish below; hairs on sides of tergite 1 and base laterally of 2 and those on venter snow-white; streak of dense hair-like scales on sides of thorax very conspicuously snow-white; fine scaling on disc of thorax above composed of dark and yellowish brown or ochreous ones, the latter more or less in streaks in anterior half, longer and denser on sides bordering white streak, across base and across hinder part of scutellum and having a distinct pinkish mauvish tint in certain lights; scaling across base of scutellum mainly black or with numerous dark ones; scaling on abdomen above composed of conspicuous snow-white ones, yellowish or ochreous ones and black ones; the white ones present on extreme sides basally of tergite 2, as a broadish conspicuous band of very dense ones across basal half of 3 (broader on sides), sometimes as a small patch on sides of 4, across base and sides of 6 and on sides of 7; the pale yellowish, or ochreous ones present in form of slightly pinkish mauvish, gleaming ones across tergite 1 (denser on sides), as yellowish or ochreous ones across base of 2, across more or less hinder parts of 3-6 and also discally on 6 and 7; the black ones densely present across hinder half of tergite 2 and bases of 4 and 5, densely on sides of abdomen and on rest of abdomen above not occupied by pale scales; scaling on venter mostly yellowish, more whitish in middle basally, especially in ♂ and also with some dark ones across bases of sternites; scaling on legs composed of pale or yellowish and dark ones, the latter more concentrated on upper faces of femora. *Wings* relatively short, subdimidiately infuscated very dark blackish brown basally and antero-costally in both sexes and to an equal extent, but apical extension of infuscation in marginal cell (to beyond midway between base of second vein and end of false vein or even to nearly opposite latter) in ♂ however slightly less broad and usually less truncate apically; infuscation in anal cell occupying much less than basal half of cell, its hind margin falling relatively far short of basal cross vein of fourth posterior cell; discoidal cell only infuscated at extreme base and axillary lobe also infused only at extreme base; veins brownish; second vein apically and upper cubital branch tending to be rather sinuous; first posterior cell distinctly narrowed apically, sub-spindle-shaped; middle cross vein nearer middle of discoidal cell; squamae opaquely yellowish or yellowish white, pale-fringed; halteres brown, their knobs also brown. *Head* with the interocular space relatively narrowish in both sexes, space on vertex in ♂ about $1\frac{1}{2}$ to $1\frac{2}{3}$ width of ocellar tubercle and about or nearly 2 times width of tubercle in ♀; frons in ♂ distinctly narrower than in ♀,

less rapidly broadening apically; face markedly short, relatively shorter than in most species of *Thyridanthrax* (frons from ocellar tubercle to midway between antennae being at least $2\frac{1}{2}$, usually slightly more, times length of face), bluntly protuberant, not very sharply pointed; antennal joint 3 club-shaped, subconical or even pestle-shaped, relatively gradually narrowed from bulbular base, but more rapidly so below, its slender part usually a little longer than, but sometimes as long as, broad base, its terminal joint quite or nearly as long as or often a little longer than joint 2. *Legs*, with about 2 or 3 spines on anterior apical part and sometimes 1 or 2 on posterior part of middle femora; hind ones with about 4-7 spines below; anterior tarsi rather hairy.

Hypopygium of ♂ similar to that of *lugens* (cf. text-fig. 194), but broadened, scoop-like, aedeagal process shorter, more ovately rounded.

From 46 ♂♂ (of which 9 are damaged) and 52 ♀♀ (of which 6 are damaged) (types in the South African Museum and paratypes in the South African Museum and in the Division of Veterinary Services at Onderstepoort).

Length of body: about $6-9\frac{1}{2}$ mm.

Length of wing: about $5-8\frac{1}{2}$ mm.

The specimens bred from the larger *Glossina brevipalpis* are larger than specimens bred from *Glossina pallidipes*, and those reared from the small species *Glossina austeni* are the smallest.

Locality: Zululand: Hluhluwe Reserve (from *Glossina brevipalpis*, Aug. 1947 and 1948) (types); Umfolosi Reserve (from *Glossina pallidipes*, Aug. 1947); False Bay (from *Glossina austeni*, 29 Oct. 1949 and March and April 1952). Natal: Durban (Barker, 1 Feb. 1927, Ac. No. 2032). East Cape: Kasouga (Kasuka) near Grahamstown (Hewitt, Jan. 1927).

As is evident from the localities this species, like *abruptus* and *lugens*, also occurs in regions where species of *Glossina* are not found. As in the case of these two tsetse fly parasites it therefore also parasitizes other species of Diptera.

Superficially it also very closely resembles the above-mentioned two species. From both it may however at once be distinguished by the much shorter face, the distinctly longer and denser hairs on frons and face and by the much darker halteral knobs. Apart from these characters the ♀ may further be distinguished from the ♀-*abruptus* by the reddish scutellum, extensive red on sides of abdomen, the more interrupted white scaling on tergites 6 and 7 and the slightly more hairy front tarsi.

From *lugens* which also has a reddish scutellum it may also be further distinguished by the darker or dark first antennal joints, much darker and more extensive dark hairs on pleurae, more greyish or greyish yellowish and not snow-white scales on occiput, more extensive infuscation in marginal cell in ♂ (which is like that of ♀) and less extensive infuscation in anal cell.

Two pupal skins attached to two ♂♂ do not appear to differ from those of both *abruptus* and *lugens* and have similar short, blunt and transverse cephalic teeth.

Thyridanthrax beneficus Aust.

(Austen, p. 162 and figs. 9 b and 10 b, *Bull. Ent. Res.*, xx, 1929.)

Two ♂♂ in the collections before me of which one was bred from a puparium of *Glossina morsitans* agree fairly well with Austen's description of three ♂♂ which were also bred from the same species of tsetse fly. Like *brevifacies* this species belongs to a subsection which has a shortish face. These two ♂♂ are characterized as follows:

Body mainly black; scutellum entirely black or obscurely reddish across hind border; abdomen entirely black on sides; antennae brownish to dark brownish, joints 1 and 2 dark above; buccal rims and streak below antennae yellowish brownish to dirty yellowish; legs coffee-brownish to blackish brown. *Vestiture* with the hairs on head in front, fine ones on disc of thorax above, two prealar bristles, postalar and scutellar bristles, fairly dense hairs on mesopleuron below pale tuft, most of those in propleural and prosternal tufts, those on coxae and those on abdomen above and on sides from apical part of tergite 2 (excepting pale ones across last tergite) black; hairs in collar above whitish or straw-coloured; upper part of mesopleural tuft more yellowish and some hairs posteriorly in propleural tuft more yellowish brownish or pale velvety brownish or brownish fulvous; upper part of metapleural tuft whitish, lower part more fulvous; hairs on sides of tergite 1 and also across this tergite as well as those on sides basally of 2, those across hind margin of last tergite and those on venter white; scales on head in front greyish white or greyish yellowish, with black intermixed ones and black ones across middle of frons; pale scaling behind eyes in form of a conspicuous snow-white occipital circlet, broadened on sides; scaling on thorax above greyish, greyish yellowish to ochreous or even brownish, more whitish or greyish whitish basally and across hind margin of scutellum; streak on each side of thorax conspicuously snow-white; scaling on abdomen above composed of snow-white ones, buff yellowish to ochreous ones and black ones, arranged as in other species; scaling on venter mainly whitish or greyish, with some dark ones across bases of sternites; scaling on legs mostly pale greyish yellowish. *Wings* with the base, costal cell, base of marginal cell up to base of second vein, entire first basal cell, greater part of second basal cell (excepting only lower apical part to a variable extent) and extreme base of anal cell yellowish brown, brown to blackish brown; first posterior cell slightly narrowed apically; middle cross vein at about or a little less than or a little more than basal fourth of discoidal cell; squamae yellowish, white-fringed; halteres yellowish, with dirty yellowish knobs. *Head* with the interocular space on vertex relatively narrow, only about $1\frac{1}{2}$ to $1\frac{2}{3}$ times width of ocellar tubercle; face rather short (frons from ocellar tubercle to midway between antennae quite $2\frac{1}{2}$ or even a little more times length of face), not sharply pointed apically; antennal joint 1 short, not or scarcely longer than 2; joint 3 subconical or pestle-shaped, not very rapidly narrowed to bulbular base below, its terminal

joint shortish, slightly shorter or only about as long as joint 2. *Hypopygium* of ♂ does not appear to differ much from that of *lugens*.

From Austen's description of the typical ♂♂ these ♂♂ differ in having only the extreme apex of the second basal cell in wings clear and in having yellowish or yellowish brownish hairs instead of whitish ones in propleural tuft. These characters may however be variable as they are in several other species.

In the South African Museum and in the Commonwealth Institute.

Length of body: about $4\frac{1}{2}$ –6 mm.

Length of wing: about 4–6 mm.

Locality: Southern Rhodesia: Bulawayo (Rhod. Mus., 1 Oct. 1922); Urungwe Tsetse Fly Belt (Dept. Agric., 9 Oct. 1936).

From *brevifacies* which also has a short face this species may at once be distinguished by the relatively shorter hairs, the black or much darkened scutellum, distinctly less extensive infuscation in the wings (in marginal and anal cells), clear apical part in second basal cell, a middle cross vein which is distinctly much nearer base of discoidal cell, and a less broadened aedeagal process in ♂.

A ♀-specimen from Bulawayo (Stevenson, 1 Oct. 1923) in the South African Museum and which Mr. Jack bred from a puparium of *Glossina morsitans*, is provisionally also referred to this species. It agrees with the ♂ in the colour of its vestiture, and most other characters, but differs in the following respects:

Face, though very slightly shorter than in *lugens* and related species, nevertheless a little longer; scutellum slightly more reddish across hind border; infuscation in wings slightly more extensive, occupying marginal cell for some distance, even to quite midway between base of second vein and end of false vein, also entire second basal cell and almost basal third of anal cell.

It resembles forms of *lugens* very closely and from the ♀ of the latter it apparently differs in having a slightly shorter face; very short or shorter and darker first antennal joints; slightly less extensive red on scutellum; more extensive black hairs in propleural tuft; slightly shorter and less dense hairs and scales on sides of abdomen; less of anal cell infuscated, this infuscation falling far short of basal cross vein of fourth posterior cell; middle cross vein much nearer base (nearer basal third) of discoidal cell.

Length of body: about 9 mm.

Length of wing: about 9 mm.

Thyridanthrax simmondsi n. sp.

A ♂-specimen in the collections before me has a similar wing-infuscation to that of *lugens* and a ♀-*abruptus*, but as its face is distinctly more rounded it is referred to a separate species which is characterized as follows:

Body, including scutellum, black; first antennal joints light reddish; legs yellowish brown. *Vestiture* with the hairs in collar above straw-coloured

yellowish; those in upper part of mesopleural tuft, intermixed ones on propleural and prosternal parts, metapleural tuft and hair-like scales on pleurae deep fulvous brownish or reddish brownish, but also with much black hair on mesopleuron, on prosternal part and on coxae; hairs on head in front, bristles and bristly hairs on thorax and abdomen above black; hairs on sides at base of abdomen white as in other species; hairs on venter pale only basally; scaling in this specimen much rubbed off, but where still evident represented by the usual snow-white ones on tergites 3, 6 and 7 and deep orange brownish, reddish brownish or ochreous brownish ones more or less in cross bands separated by black ones; scaling on venter brownish; that on legs mostly dark or black, gleaming dark velvety brownish. *Wings* infuscated like that of *lugens* and ♀ of *abruptus*; middle cross vein nearer middle of discoidal cell; the latter rather broadish; first posterior cell very slightly narrowed apically; squamae brownish, pale-fringed; halteres and their knobs brown. *Head* with the face roundly convex or protuberant, not sharply conical as in most other species, also relatively shorter; antennal joint 3 club-shaped, rapidly narrowed on inner lower part from bulbular base, its slender part subequal in length to broadened base.

From a ♂ in the British Museum.

Length of body: about 6 mm.

Length of wing: about 6 mm.

Locality: Cape Peninsula: Cape Town to Cape Point (Simmonds, 1930).

A headless, denuded ♀-specimen in the British Museum, from the same locality and obtained by the same collector, probably represents the ♀ of this species agreeing with the ♂-type in most of its characters.

From the ♂ of *lugens* this species may at once be distinguished not only by its more rounded and slightly shorter face, but by the entirely black scutellum, more extensive infuscation in marginal cell, brownish squamae, brown halteral knobs and slightly more club-shaped third antennal joints.

Thyridanthrax cafferariae n. sp.

This species which appears to be confined to the Eastern Cape is characterized as follows:

Body mainly black; first antennal joints and sometimes also second light reddish; frons sometimes with a central reddish streak anteriorly; buccal rims and streak below antennae yellowish or yellowish brownish or even yellowish reddish; hinder half of scutellum right round, postalar calli, sutural parts of pleurae to a variable extent, sometimes also sides of tergites 2 and 3 obscurely to a variable extent, last tergite in ♂ and broadish hind margins of sternites in both sexes reddish or ferruginous reddish; legs pale, yellowish brownish, sienna-brownish to reddish brownish. *Vestiture* with all the hairs on head in front, longish and dense hairs in posterior part of collar, fine hairs on disc of thorax,

two or three prealar bristles, postalar and scutellar bristles, hairs on abdomen above and on sides of tergite 2 (including those on last tergite in ♂), fairly dense hairs and bristly ones on mesopleuron below the pale upper part of tuft, numerous hairs or a dense tuft on prosternal part, those on coxae, sometimes some hairs anteriorly in metapleural tuft and the hairs on venter from sternite 3 black; collar above anteriorly whitish or straw-coloured; upper part of mesopleural tuft more yellowish but sometimes also paler and straw-coloured; hairs in hinder or greater part of propleural tuft greyish whitish to greyish yellowish; upper part of metapleural tuft whitish and lower part more yellowish to pale fulvous; rest of hairs and hair-like scaling on pleurae gleaming brownish or reddish fulvous; hairs on sides of tergite 1 and basally on sides of 2 snow-white; those at base of venter sericeous white; scaling on head in front mainly greyish or greyish yellowish, but with black ones across middle of frons; scaling across occiput and especially broadly on sides behind eyes snow-white, but darker lower down on sides; scaling on thorax above more or less in streaks of brownish or ochreous ones separated by dark ones, but those in a triangle at base longer, more hair-like and together with whitish ones on scutellum forming a rather conspicuous and contrasting white or greyish white dorsal patch; streak of dense hair-like scales on side conspicuously snow-white; patch of scales at base of postalar calli orange yellow; scaling on abdomen above composed of snow-white ones, deep ochreous or orange yellow ones and black ones, arranged as in most species, but the white ones usually also with a fairly conspicuous patch on sides of tergite 4 and with the black ones in rather broad conspicuous bands and densely on sides; scaling on venter composed of white, ochreous and black ones of which the black ones are present in segmental patches on each side and the white ones across bases of sternites, especially along middle; scaling on legs mainly yellowish brownish or ochreous brownish, darker on anterior faces. *Wings* hyaline, but with a basal and antero-costal dark blackish brown infuscation in both sexes, slightly less extensive in ♂; the infuscation extending from a little less than or about basal third of anal cell in ♂ (about or a little less than basal half in ♀) obliquely across to a little beyond base of second vein in marginal cell in ♂ (or much beyond it to at least midway between it and end of false vein or even near end of latter in ♀), also occupying either the entire second basal cell in ♂ or leaving its lower apical part clearer to a variable extent in ♂ of a varietal form; first posterior cell distinctly narrowed apically, sub-spindle-shaped; middle cross vein usually beyond basal third and nearer middle of discoidal cell; squamae yellowish to very pale yellowish brownish, pale-fringed; halteres yellowish brownish, with brown or brownish knobs. *Head* with the interocular space on vertex in ♂ about or nearly twice and in ♀ about or nearly 3 times width of ocellar tubercle; antennal joint 3 bulb-shaped, rather rapidly broadened below into bulbular base, its slender part thus well demarcated, at least as long as or distinctly longer than bulbular base, its terminal joint about as long as or a little longer than joint 2. *Legs* with about 2 to 3 longish spines anteriorly and 3 or 4 smaller ones posteriorly on middle

femora; hind ones with about 5 to 8 spines below; front tarsi with fairly dense fine hairs. *Hypopygium* of ♂ similar to that of *lugens* (cf. text-fig. 194).

From 6 ♂♂ and 6 ♀♀ (holotype in Transvaal Museum, allotype in South African Museum and paratypes in both museums).

Length of body: about 6–8½ mm.

Length of wing: about 6–8½ mm.

Locality: East Cape: Resolution in Albany Dist. (Walton, 19 March 1928 and 23 March 1928) (types); Resolution (Walton, Jan.–April 1928); Fort Brown (Walton, 27 March 1929); Kabeljauws (J. H., Jan. 1925); Boesman's River near Grahamstown (S. Afr. Mus., March 1954).

Easily recognized by the dorsal patch of rather conspicuous and contrasting white and greyish white scaling at base of thorax and on scutellum, the pale yellowish brownish legs and the bulb-like third antennal joints. It can only be confused with *lugens* from which it may however be easily distinguished by the more bulb-like and less club-like (or subconical) third antennal joints of which the base is more rapidly broadened bulb-like, the paler legs, the entirely black or scarcely reddened sides of abdomen and the more conspicuous and contrasting white scaling at base of thorax and on scutellum, and less extensive or narrower band of black scaling across hind border of tergite 2.

The species appears to be variable and one distinct form may be recognized in which the frons anteriorly in both sexes has a longitudinal yellowish streak and the apical part of second basal cell in ♂ is clear or clearer to a variable extent as in ♂♂ of *viduatus* and *beneficus*.

Thyridanthrax occiduus n. sp.

This species resembles both *lugens* and especially *caffrariae* very closely and from these two species it may be distinguished as follows:

Body also mainly black, but also with much brownish on pleurae; sides of face below, streak below antennae and buccal rims distinctly more extensively yellowish red or reddish; legs pale yellowish reddish as in *caffrariae* and not dark or darker brownish as in *lugens*; sides of abdomen in ♂ more extensively reddish than in *caffrariae*, more like that of *lugens*. *Vestiture* with the hairs on head in front and especially on face distinctly longer than in both these species, the face appearing more hairy and also with some golden gleaming hairs on extreme sides; pale hairs on pleurae more reddish fulvous or fox-red, those in upper part of mesopleural tuft deeper yellowish or more fulvous, and those in propleural tuft also deeper or more orange yellowish; last tergite in ♂ with dark hairs as in *caffrariae*, not pale ones as in *lugens*, but white scaling at base of thorax and on scutellum, unlike those of the former species, forming a slightly less contrasting white dorsal patch. *Wings* infuscated in both sexes as in *lugens*; discoidal cell tending to be more subtruncate or obtuse apically, its apical cross vein slightly more oblique to hind margin; squamae on the whole more

brownish than in *caffrariae* and not yellowish as in *lugens*. Head with the face slightly less conically pointed apically, more rounded; antennal joint 3 slightly but distinctly more rapidly dilated or bulging basally below than in *caffrariae* and not subconical or pestle-shaped as in *lugens*, more retort-shaped, its terminal joint longer than in both these species, distinctly more than half length of slender part of joint (usually less than or much less than half or even very short in *caffrariae* and *lugens*).

From a ♂ and a ♀ (holotype in the South African Museum, allotype in the Transvaal Museum).

Length of body: about $7\frac{1}{2}$ –9 mm.

Length of wing: about 7 – $8\frac{1}{4}$ mm.

Locality: Western and South-western Cape: Leipoldtville-Elands Bay (Mus. Exp., Nov. 1948) (holotype); Stellenbosch (Brauns, Nov. 1924) (allotype).

Thyridanthrax nitidifrons n. sp.

Body, including scutellum, black; proboscis and legs yellowish brown, dark reddish brownish to dark brown or even blackish brown, the tibiae slightly paler. *Vestiture* with the hairs in collar above, mesopleural tuft, propleural and prosternal parts mainly straw-coloured yellowish; those on hinder upper aspect and lower part of mesopleuron and pleurae gleaming more yellowish fulvous; a few dark bristly hairs intermixed on prosternal part and also on mesopleuron; metapleural tuft whitish to straw-coloured; hairs on head in front, on thorax above, thoracic and scutellar bristles, those on coxae, all the hairs on sides of abdomen from apical part of tergite 2 and across hind margins of tergites (excepting sericeous yellowish ones on tergite 1 and discal part of 2 and in ♂ on last tergite), and hairs on last sternite in ♀, black; basal tuft on sides of abdomen and hairs on venter whitish; streak on side of thorax very pale yellowish white or white; scales on face, shining pale brassy or bronzy yellowish; that on frons in front dense, brilliantly shining, silvery white in ♂, more brassy or bronzy yellowish in ♀; scaling behind eyes silvery white, also present on occiput; fine scaling on thorax mainly greyish yellowish, becoming paler posteriorly and along streaks anteriorly; that on scutellum slightly ochreous basally, more greyish yellowish or greyish whitish posteriorly, but without very dense and conspicuous white ones across hind border; scaling on abdomen above fine, more hair-like, composed of dull ochreous, black and white ones, the latter arranged less densely across hind margin of tergite 1 across base on sides of 2 and as conspicuous bands across bases of 3 and 6 and on entire 7, and sometimes as a small patch basally on sides of 4; ochreous ones rather densely and conspicuously present on tergites 2–6; the black ones mostly on tergite 2 apically and across hind margin of 3, base and apex of 4 and 5 to a variable but much lesser extent than extensive ochreous ones, and in ♀ also across hind margins of 6 and 7; fine scaling on venter mostly white or whitish; that on legs greyish yellowish to buff-coloured, appearing dark on outer faces in certain

lights. *Wings* hyaline; base, costal cell, first and second basal cells, extreme base of discoidal cell and extreme base of anal cell, and in ♀ also base of marginal cell, however, yellowish brownish; veins yellowish brownish to reddish brownish; base of second vein, middle cross vein, base of discoidal cell and basal vein of fourth posterior cell appearing darker, showing spot-like infuscations; second vein not very deeply recurved apically; middle cross vein varying in position at between basal fourth and basal third of discoidal cell; first posterior cell rather narrowish, slightly narrowed apically; squamae whitish, white-fringed; halteres yellowish, their knobs yellowish whitish; *Head* with the face not very sharply conically produced, but not as short and rounded as in some species; interocular space on vertex a little less than twice width of ocellar tubercle in ♂ and quite twice to nearly $2\frac{1}{2}$, or even slightly more, times width of tubercle in ♀; antennal joint 3 conical or subconical, more rapidly narrowed apically from broad base below, its slender part relatively stoutish, thicker in side view, its terminal joint markedly short, hardly distinguishable, much shorter than joint 2. *Legs* with usually only 1 spine anteriorly on middle femora and with a few spinelets and fine longish hairs on hinder part; hind femora with about 3 or 4 slender spines below.

Hypopygium of ♂ as shown in text-fig. 195. Last sternite of ♂ like that of *cidarellus*, but the dorso-apical angles more sharply pointed.

From 2 ♂♂ and 7 ♀♀ in the South African Museum.

Length of body: about $5\frac{1}{2}$ –7 mm.

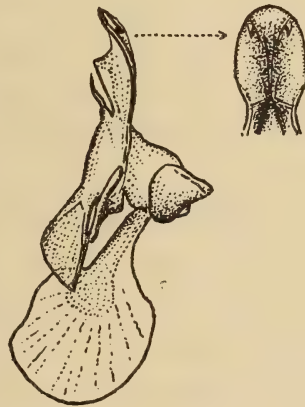
Length of wing: about 5–7 mm.

Locality: Koup Karoo: Dikbome near Merweville in the Laingsburg Div. (Zinn, April–May 1950 and Jan. 1953). Bushmanland: Onseepkans on the Orange River (Mus. Exp., Oct. 1939) (allotype). North-west Cape: Putsonderwater (Mus. Exp., Oct. 1939) (holotype). Karoo: Richmond Dist. (Mus. Exp., Nov. 1939).

Easily characterized by the shining silvery white and brassy scaling on frons, predominantly pale yellowish hair on pleurae, extensive ochreous scaling on abdomen above and reduced yellowish brownish infuscation in wings which in anal cell is restricted to basal part.

Thyridanthrax bechuanus n. sp.

Two ♀♀ in the collections before me resemble the ♀ of *nitidifrons* very closely in the infuscation of the wings, but agree and differ from the latter in the following respects:



TEXT-FIG. 195. Side view of aedeagal apparatus and ventral view of aedeagal process of ♂ *Thyridanthrax nitidifrons* n. sp.

Body including scutellum also mainly black; legs also reddish brown or brown; lower part of face on sides and streak below antennae, however, more extensively or more conspicuously yellowish or pale yellowish brownish. *Vestiture* with distinctly more numerous and denser black hairs on mesopleuron below the yellowish upper part of tuft and in propleural tuft and prosternal tuft; pale scaling on head in front gleaming slightly duller and more greyish silvery than bright bronzy; scaling behind eyes also silvery; streak of dense hair-like scales on sides of thorax and also scales across hind border of scutellum whiter, more snow-white; usual bands of snow-white scaling on abdomen above distinctly more conspicuous and also more extensively present basally on sides of tergite 4; ochreous scaling on abdomen above relatively less extensive, less uniformly present, there being distinctly more extensive and broader bands of black ones across apical part of tergite 2, hind margin of 3 and bases and hind margins of the rest; scaling on venter similar, but those on legs and sparse ones on pleurae slightly deeper yellowish; rest of hairs on body similarly coloured. *Wings* with the basal and antero-costal infuscation yellowish brown, occupying more or less the same parts as in ♀ *nitidifrons*, but the basal infuscation in anal cell slightly less extensive, more confined to extreme base and the infuscation in marginal cell on the other hand distinctly more extensive, extending beyond base of second vein for a distinctly longer distance, nearly to a point midway between the latter and end of false vein in costal cell; middle cross vein farther away from base of discoidal cell, at about from just before basal third to nearly middle; first posterior cell on the whole slightly broader, but also slightly narrowed apically; squamae and halteres similarly coloured. *Head* with the face relatively and distinctly slightly longer, more sharply pointed apically; interocular space on vertex relatively narrower and only about or a little more than 2 times width of ocellar tubercle; frons itself slightly narrower; antennal joint 3 more pestle-shaped, slightly more rapidly broadened below to bulbular base, its slender part relatively much longer and its terminal joint distinctly much longer, more conspicuously separately visible and slightly longer than joint 2.

Another larger ♀-specimen from Portuguese East Africa, which differs from the typical Bechuanaland form in having slightly duller, more greyish yellowish scaling on head in front, deeper yellowish or more orange fulvous pale hairs on pleurae, more yellowish or ochreous scaling on venter and legs, and even a less infuscated base of anal cell, appears to represent an East African form of this species.

From 3 ♀♀ (type in the Transvaal Museum).

Length of body: about $5\frac{1}{2}$ – $7\frac{1}{2}$ mm.

Length of wing: about $5\frac{1}{2}$ – $7\frac{1}{2}$ mm.

Locality: Bechuanaland: Damara Pan (V.-L. Kal. Exp., 15–21 April 1930) (type); Kaotwe (V.-L. Kal. Exp., 8–12 April 1930). Portuguese East Africa: Inyack Island (Breyer, Sept. 1919).

Thyridanthrax viduatus (Lw.)

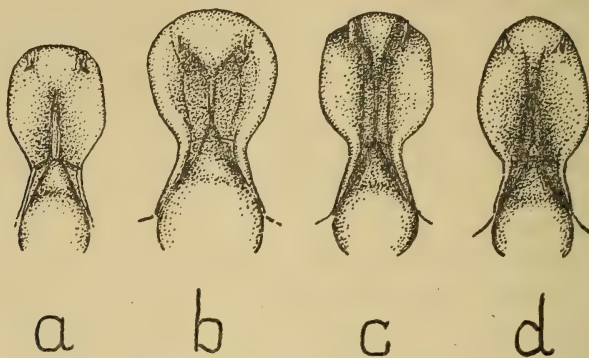
(Loew, p. 221 and tab. ii, fig. 22, *Dipt. Faun. Südaf.*, i, 1860 (as *Anthrax*); Bezzi, p. 172, *Ann. S. Afr. Mus.*, xviii, 1922; Bezzi, p. 202, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Syn. = *lugens* Bezzi, in part, nec Loew, p. 135, *Ann. S. Afr. Mus.*, xviii, 1921.)

The specimens which are here referred to *viduatus* are even more remarkable than *abruptus* in showing differences in the infuscation of the wings between ♂♂ and ♀♀ and the progressive reduction of wing-infuscation in various forms of ♂♂. The ♀♀ appear to be stable as far as the wing-pattern is concerned and no ♀ with reduced wing-infuscation as described by Loew for the type is represented, a fact which suggests that Loew may have been mistaken in the sex of his type. This species resembles *abruptus*, *lugens* and other species with a basal and antero-costal infuscation in ♀♀ very closely as far as the ♀♀ are concerned and is characterized as follows:

Body black; antennal joints 1 and 2 and hinder part of scutellum reddish ferruginous or reddish brown to a variable extent, the scutellum sometimes entirely or almost entirely dark in ♂♂ with a reduced wing-infuscation; legs dark piceous brownish, blackish brown to almost black. *Vestiture* with the hairs on pleurae mainly dark, dark fulvous brownish or dark velvety brownish and with extensive or much black hair or sometimes entire pleurae black-haired, but more usually with some yellowish to fulvous brownish ones on propleurae to a variable extent; collar above anteriorly and upper part of mesopleural tuft straw-coloured, deep yellowish to orange yellowish to a variable extent; upper part of metapleural tuft and hairs at base of abdomen on sides snow-white; rest of hair on head, thorax and abdomen black; hairs on venter sometimes entirely black, but often with those basally pale or whitish; scaling on head in front whitish, greyish to slightly greyish yellowish, but with much black scaling as well; scaling behind eyes snow-white even on occiput; streak of dense hair-like scales on sides of thorax conspicuously white; scaling on abdomen above white, black and ochreous, the dark ones rather extensive; the bands of snow-white ones across bases of tergites 3 and 6 and on 7 very conspicuous and also with a more extensive patch of white scales on sides of tergite 4 and basally on sides of 2 than in *abruptus* and some other species; scaling on venter usually with fewer white ones, mostly along middle, sometimes mostly yellowish brownish, brownish or even dark, and with segmental patches of black ones in rows; scaling on legs with greyish yellowish and dark ones, sometimes almost entirely dark, gleaming graphite-like. *Wings* in ♀ infuscated antero-basally like ♀♀ of *abruptus*, *lugens* and other species with infuscated wings, the infuscation dark blackish brown to almost black, occupying also entire second basal cell and base of discoidal cell; whitish spot at base of third vein rather large; base of axillary lobe not or scarcely tinged at extreme base; infuscation in marginal cell extending some distance beyond base of second vein; wings in ♂ either with the

extreme apex of second basal cell clear or with half or more than half of this cell clear to a variable extent and a large, pale, subopaque spot at base of third vein, or with most of the wings clear, only the base and costal cell and extreme base of marginal cell and anterior basal part of first basal cell dark brownish or blackish brown to a variable extent; such clear-winged ♂♂ usually with spot-like infuscations at base of third vein, base of second vein, on middle cross vein, at base of discoidal cell and on basal cross vein of fourth posterior cell; costal cell rather broadish; middle cross vein in both sexes usually tending to be at



TEXT-FIG. 196. Ventral view of the aedeagal process of (a) ♂ *Thyridanthrax abruptoides* n. sp.; (b) ♂ *Thyridanthrax viduatus* (Lw.); (c) ♂ *Thyridanthrax thyridus* n. sp.; (d) ♂ *Thyridanthrax bolbocerus* n. sp.

about basal third to near middle of discoidal cell; first posterior cell broadish, narrowed apically; squamae brownish, pale- or white-fringed; halteres and other knobs brownish or velvety brownish. Head with a rather conspicuous foveate depression at about middle of frons even in ♂; antennal joint 3 club-shaped, tapering rapidly from bulb-like base on inner side, its slender part longish, well demarcated, ending in a longish terminal joint which is much longer than joint 2. Hypopygium of ♂ with the aedeagal process (text-fig. 196, b) shorter, broader, more ovate than in either *abruptus* and *lugens*. Last sternite of ♂ with the dorso-apical angles slightly more prominent.

In the South African and British Museums and in the Commonwealth Institute.

Length of body: about 4–9 mm.

Length of wing: about 4–8½ mm.

Locality: South-western and Southern Cape, Little Karoo and Namaqualand. From the locality labels it appears that this species seems to be more frequently met with on mountainous and hilly country. Apart from the variation in the infuscation of the wings of the ♂♂ the species seems to be also slightly variable in the extent of the dark hair on the body below and the extent of the dark scaling on the legs. A ♀-specimen from Hex River in the collections of the South African Museum and which obviously belongs to *viduatus* was labelled as *lugens* by Bezzi.

The wing-infuscation of some ♂♂ is very much like that described and illustrated by Austen for *beneficus*, a species which parasitizes puparia of *Glossina morsitans* in Portuguese East Africa (cf. Austen, p. 162 and text-figs. 9 b and 10 b, *Bull. Ent. Res.*, xx, 1929). Austen's species, however, may at once be distinguished by its less conical, much shorter, and more rounded face.

Thyridanthrax aberrans n. sp.

This species so closely resembles some forms of *viduatus* that it may almost be considered as constituting only another more extreme north-western form of the latter. It however differs from *viduatus* and its forms in the following respects:

Body also mainly black; scutellum mainly dark in ♂ or in both sexes less extensively reddish and then only posteriorly or only obscurely so apically. *Vestiture* with the hairs in collar and in upper part of mesopleural tuft usually paler, more cream-coloured or whitish; those on pleurae usually with slightly more and denser black ones on mesopleuron and in propleural and prosternal tufts; scaling on legs mainly or entirely dark whereas in some forms of *viduatus* there are some pale or paler-gleaming ones. *Wings* with the infuscation very similar, the apical half of or even entire second basal cell in ♂ clear or clearer as in some forms of *viduatus*, but in ♀ infuscation in anal cell distinctly less extensive, falling far short of and not reaching basal cross vein of fourth posterior cell; middle cross vein in both sexes distinctly nearer base of discoidal cell, at about less than or scarcely basal third of latter cell (at usually a little or much beyond basal third in *viduatus*); second vein tending to be less sinuous and less recurved apically. *Head* without or with a scarcely indicated central foveate depression on frons, especially in ♂ (distinct and conspicuous in ♂ *viduatus*); antennal joint 3 on the whole or distinctly more conical, much more gradually narrowed below from the broad base, less bulging below, its slender part thicker and stouter, especially in ♂, and its terminal joint on the whole shorter, scarcely or less than half length of slender part; interocular space on vertex in ♂ on the whole relatively broader, nearly or quite twice width of ocellar tubercle (less than twice in ♂ *viduatus*), but in ♀ only about $2\frac{1}{2}$ times width of tubercle whereas in ♀ *viduatus* it is about or nearly 3 times.

From 2 ♂♂ and 1 ♀ in the South African Museum.

Length of body: about $6\frac{1}{2}$ – $7\frac{1}{2}$ mm.

Length of wing: about 6–7 mm.

Locality: Richtersveld in North-west Namaqualand: Lekkersing (Mus. staff, March 1935) (types); Vioolsdrif (Mus. staff, March 1935).

Thyridanthrax vicinalis n. sp.

This species also resembles *viduatus* very closely and superficially the ♀ is almost inseparable from the ♀ of *viduatus*. It agrees and differs from the latter species in the following respects:

Body also mainly black; first antennal joint also light reddish; scutellum also dark reddish posteriorly or in hinder part to a variable extent, sometimes however more obscurely so or even almost entirely black; hind margins of tergites on extreme sides and those of last two tergites in ♂ obscurely reddish; legs on the whole distinctly paler, more yellowish brownish, brown, to reddish brown, the front ones distinctly paler. *Vestiture* with the hairs on head in front, especially on face, slightly but distinctly longer, giving the face a more hirsute or hairy appearance; hairs in collar above and in upper part of mesopleural tuft more whitish or white, not yellowish or even orange yellowish; hairs on pleurae with slightly less dense and extensive black ones on mesopleuron and in propleural tuft, those in posterior part of the latter entirely or with more extensive yellowish ones; rest of hairs and hair-like scaling on pleurae paler velvety brownish; scaling on coxae paler, more yellowish brownish; metapleural tuft more whitish or white, with dark hairs anteriorly; ochreous scaling on abdomen above more extensive in relatively broader cross-bands and black ones less extensive; white scaling on extreme sides of tergite 4 wanting or in a much smaller patch; scaling on venter also mainly dark or brownish, though with some pale ones also present; scaling on legs very similar, though mainly dark, also with some pale ones as in some forms of *viduatus*. *Wings* similarly infuscated—dark blackish brown in basal and antero-costal part in both sexes, the second basal cell in ♂ entirely infuscated as in ♀ and not clear or clearer apically as in ♂-*viduatus*; infuscation in anal cell in both sexes however relatively more extensive than in *viduatus*, its apical margin scarcely falling much short of basal cross vein of fourth posterior cell; infusion at base of discoidal cell also slightly more extensive, occupying more of base, the clear indentation opposite it less deep than in *viduatus*; second vein and upper cubital branch more sinuous or contorted. *Head* with antennal joint 3 more retort- or flask-shaped, more markedly bulging below basally, its slender part relative to length of joint and the much dilated or bulbular base distinctly shorter than in *viduatus*, only about or scarcely longer than, or even shorter than bulb and its terminal joint distinctly much longer than in *viduatus*, almost or even about as long as slender part; face distinctly more rounded apically.

Hypopygium of ♂ similar to that of *viduatus*, with the scoop-like part of aedeagal process also broadly rounded and shortish (cf. text-fig. 196, b), but apparently slightly more subquadrate, its apical margin more truncately rounded.

From 4 ♂♂ and 3 ♀♀ in the South African Museum.

Length of body: about 5–7 mm.

Length of wing: about 5–7 mm.

Locality: South-western Cape: upper sources of the Olifants River near Ceres (Mus. Exp., Dec. 1949).

Thyridanthrax thyridus n. sp.

These specimens also differ very little from *viduatus* and probably only represent a well-defined and more or less regional variety of the latter. The

aedeagal process of the ♂-hypopygium, however, shows certain constant differences. The following combination of characters which are present in all the specimens, however, distinguish them from *viduatus*:

Body also mainly black; the first and second antennal joints, broad hind border of scutellum, sides of tergites 2 and 3 or even entire sides of abdomen in ♂ and rather broad hind margins of sternites in both sexes reddish; legs paler, yellowish to yellowish brownish and mostly yellowish-scaled or at least with much fewer dark scales than in *viduatus*. *Vestiture* with distinctly much fewer dark or black hairs on pleurae and in lower part of mesopleural tuft; base of venter with more pale or whitish hairs and venter with more pale or even more whitish scaling; black scaling on abdomen above less extensive and the ochreous ones distinctly more extensive than in *viduatus*. *Wings* in ♂ like those of some forms of ♂-*viduatus* (cf. Loew, p. 221 and tab. ii, fig. 22, *Dipt. Faun. Südafr.*, i, 1860) or *aberrans* or of *beneficus* as figured by Austen; more than apical half of second basal cell clear and with a constant, large, subopaque, pale spot in first basal cell at level of base of third vein; alula tending to be clear; infuscation at base of marginal cell scarcely or not extending beyond base of second vein; infuscation in anal cell in ♀ distinctly less extensive than in *viduatus*, confined to base as in *bechuanus*, not extending to near middle, and pale, subopaque spot in first basal cell as conspicuous as in ♂; squamae with the hind border paler, more yellowish.

Hypopygium of ♂ with the aedeagal process as shown in text-fig. 196, c.

From 24 ♂♂ and 11 ♀♀, including types, in the South African Museum.

Length of body: about 5–8 mm.

Length of wing: about $5\frac{1}{2}$ –8 mm.

Locality: Little Karoo: Vanwyksdorp (Mus. Exp., Oct. 1937) (types); Touws River between Ladismith and Montagu (Mus. Exp., Oct. 1937). Koup Karoo: Koup (Mus. Exp., Feb. 1938). East Cape: 'Umdala' near Fort Beaufort (Mus. Exp., March 1954).

Thyridanthrax arenicolus n. sp.

A fairly distinct species which belongs to the *thyridus*-section, but which is characterized as follows:

Body black, but with antennal joints 1 and 2, sides of face to a variable extent (sometimes even greater part of face), postalar calli, hinder part or half or at least hind border of scutellum, sides of tergites 2 and 3 (more so in ♂), or sometimes sides of abdomen to a variable extent, sides of abdomen posteriorly in ♂, last tergite to a variable extent in both sexes, sutural parts of pleurae and greater part of venter in ♂ or at least broadish hind margins of sternites and last sternite in both sexes yellowish reddish or reddish; legs pale yellowish brownish to brown, the front ones more yellowish. *Vestiture* with the hairs on head in front mainly black, but with those at base or in nearly basal half of frons, some on

sides, those on sides of face and intermixed ones on rest of face as well as some on antennae below yellowish and gleaming reddish golden; fine hairs on thorax above, two or three prealar bristles, postalar and scutellar bristles, hairs on abdomen above and on sides from apical half of tergite 2, some hairs on mesopleuron below pale upper part of tuft, bristly hairs on coxae and those on hinder part of venter black; some bristly hairs at base of thorax and across hind border of scutellum gleaming reddish golden; hairs in collar above and in upper part of mesopleural tuft straw-coloured yellowish; those in propleural tuft and hairs and scales on rest of pleurae and in ♀ to a certain extent at base of tergite 2 on sides fulvous yellowish or with reddish golden gleams; greater part of or upper part of metapleural tuft and hairs on sides of tergite 1 snow-white; hairs at base of venter more sericeous whitish; scaling on head in front rather dense sand-coloured or greyish yellowish, with a very faint pinkish tint; scaling behind eyes snow-white, even narrowly across occiput; scaling on thorax above rather dense, pale pinkish or mauvish, sand-coloured or ochreous and in streaks, those basally longer and more whitish; streak of dense hair-like scales on sides and scales on postalar calli and across hind border of scutellum conspicuously snow-white; scaling on abdomen above composed of snow-white, ochreous and black ones, the white ones arranged as in most other species, but a distinct patch also present on sides of tergite 4; the ochreous ones rather extensive and in slightly broader bands across tergites than the black ones; scaling on venter mainly pale ochreous yellowish, more whitish basally in middle and with dark or black ones in a row of segmental patches on each side; scaling on legs mainly sand-coloured or greyish ochreous with a very faint pinkish hue; sometimes with dark or brown scaling on anterior or anterior and upper faces of middle and hind femora. *Wings* hyaline; base, costal cell, first basal cell, extreme base of marginal cell and bases of second basal and anal cells yellowish brownish in ♂; infuscation in ♀ more extensive, occupying the same parts but also extending for some distance beyond base of second vein in marginal cell, including most or greater part of second basal cell, extreme base of discoidal cell and about or nearly basal third of anal cell, and with the apical part of second basal cell clear or clearer to a variable extent in the middle; yellowish spot below base of third vein in first basal cell rather conspicuous in both sexes; base of second vein, middle cross vein, base of discoidal cell and basal cross vein of fourth posterior cell with distinct darker spot-like infusions, more evident in ♂; first posterior cell broadish, slightly narrowed apically; middle cross vein at about basal fourth or a little less of discoidal cell in ♂ and at about basal third or a little beyond it in ♀; squamae yellowish, white-fringed; halteres and their knobs pale yellowish brownish to brownish. *Head* with the interocular space on vertex in ♂ about $1\frac{1}{2}$ times and in ♀ about or nearly twice width of ocellar tubercle; antennal joint 3 bulb-shaped, rapidly broadened below to bulbular base, its slender part well demarcated and its terminal joint relatively long, nearly or quite as long as slender part, or about or nearly half length of entire joint.

From 1 ♂ and 3 ♀♀ in the South African Museum.

Length of body: about $5\frac{1}{2}$ –6 mm.

Length of wing: about $5\frac{1}{2}$ –6 mm.

Locality: Western Cape: Leipoldtville-Elands Bay (Mus. Exp., Nov. 1948).

The region where this species was taken constitutes part of the South-western and western coastal region composed mainly of sand and sand dunes and its attendant flora. The pale hairs on basal part of frons and on sides of face, the dense, more or less sand-coloured scaling on head, thorax, abdomen and legs, the pale legs and reduced infuscation in wings characterize this species and distinguish it from most other species. From *thyridus* which it closely resembles it may, however, be distinguished by the presence of some pale hairs on head in front, much fewer black hairs on pleurae, denser and more sand-coloured pale scaling, more extensive reddish on sides of face and abdomen, more extensively clear second basal cell in ♂, presence of a clearer middle area in this same cell in ♀ and relatively narrower interocular space.

Thyridanthrax semilautus n. sp.

Another species very close to *thyridus* and superficially almost inseparable from *arenicolus*. From the latter it differs as follows:

Body mainly black; sides of face less extensively reddish; hinder half or hinder part of scutellum and sides of abdomen more extensively reddish. *Vestiture* without any pale hairs on head in front; hair on pleural parts with much fewer dark ones, the propleural tuft and prosternal part being entirely pale-haired or at least with fewer dark ones; scaling on head in front more whitish or greyish; scaling on venter more whitish or white and not mainly ochreous or sand-coloured; that on legs also distinctly more greyish white. *Wings* with a more distinct and more conspicuous spot-like infuscation on basal cross vein of fourth posterior cell, especially in ♂; first posterior cell on the whole more narrowed apically; knobs of halteres tending to be paler or more yellowish. *Head* with the third antennal joint slightly more pestle-shaped, club-shaped or even subconical, more gradually narrowed below from bulbular base, its slender part relatively thicker and its terminal joint shorter, much shorter than slender part, very much shorter than slender part and very much less than half length of entire joint.

From *thyridus* it may be distinguished by the more subconical third antennal joints, the almost entirely clear second basal cell in ♂, the clearer area in second basal cell in ♀, smaller pale spot in first basal cell, more narrowed first posterior cell, paler halteral knobs, much fewer black hairs on pleurae and to a certain extent the more extreme reddish on sides of abdomen.

From 2 ♂♂ and 2 ♀♀ in the South African Museum.

Length of body: about 6– $6\frac{1}{2}$ mm.

Length of wing: about 6– $6\frac{1}{2}$ mm.

Locality: Rooinek (Rooinek Pass) near Laingsburg (Zinn and Hesse, Jan. 1949) (types). Koup Karoo: Merweville Dist. (Zinn, Jan.-Feb. 1947). South-West Africa: Cayimaeis in the Kaokoveld (Mus. Exp., March 1925).

The somewhat denuded ♀ from Cayimaeis is provisionally also referred to this species, agreeing with the ♀-type in most respects, but differing in having more dark hairs on prosternal part, a slightly larger clearer area in second basal cell and a more broadly open first posterior cell. It may represent a varietal form of this species.

Thyridanthrax stylicornis n. sp.

A distinct and characteristic species which is characterized as follows:

Body mainly black, the pleurae however more brownish or dark brownish or sometimes even dark reddish brown to a variable extent; antennal joints 1 and 2 (or at least 1 constantly) light yellowish red; sides of face below, buccal rim, and streak below antennae yellowish reddish, yellowish brown or reddish brown to brown; base of postalar calli and hinder half or hinder part or hind border of scutellum and more obscurely hind margins of sternites (in some ♂♂) ferruginous or reddish to a variable extent; legs yellowish to pale yellowish brown, brownish to dark brown, the middle and hind ones sometimes darkened to a variable extent. *Vestiture* with the hairs on frons and face, especially latter, rather longish, appearing slightly more hirsute than in many other species, more like those of *brevifacies* and *occiduus*; all the hairs on head in front, in collar behind, fine ones on thorax above, two or three prealar bristles, sometimes some other prealar bristly hairs, postalar and scutellar bristles, hairs on abdomen above, even those on last tergite in ♂, denser ones on sides, dense hairs on mesopleuron below pale upper part of tuft, numerous ones in propleural tuft, especially anteriorly in lower part, dense tuft on posterior upper aspect of mesopleuron, bristly hairs on coxae and hairs on venter from sternite 3 black; hairs in collar above and in upper part of mesopleural tuft straw-coloured yellowish to pale yellowish, the latter sometimes slightly more yellowish; pale hairs in propleural tuft and on prosternal part more fulvous yellowish, sometimes, however, slightly more whitish; rest of hairs and hair-like scales on pleurae fulvous brownish or velvety brownish; upper part of metapleural tuft white or whitish and lower part fulvous yellowish to brownish; dense hairs on sides of tergite 1 and base laterally of 2 conspicuously snow-white; hairs at base of venter sericeous white; scaling on head in front (except for black ones across frons just beyond middle) mainly dull yellowish or greyish yellowish, with some paler or greyish whitish ones on sides; scaling behind eyes and across occiput dense, conspicuously snow-white; scaling on thorax above ochreous to ochreous brownish, more or less separated by streaks of darker ones, becoming snow-white at base; streak of dense hair-like scales on each side conspicuously snow-white; scaling on scutellum pale ochreous brownish, snow-white across hind border; scaling on abdomen above composed of snow-white, ochreous or

pale ochreous brownish and black ones, the white ones arranged as in most other species, the band across basal half of tergite 3 being very conspicuous and usually also with a basal patch on extreme sides of 4; the ochreous and black ones arranged across in more or less equally extensive bands, but black ones across tergite 2 (especially hinder part) more extensive and longer ones on sides of abdomen also more extensive and more evident; scaling on pleurae and coxae brownish or ochreous brownish; scaling on venter mainly greyish yellowish to pale yellowish brownish; scaling on legs mainly greyish yellowish, with some brownish ones along anterior faces of femora. *Wings* hyaline, but more or less equally infuscated dark blackish brown at base and in antero-costal part in both sexes as in the case of *lugens*, ♀-*abruptus* and other species with similarly infuscated wings; infuscation in marginal cell extending for a little distance beyond base of second vein in ♂ and in ♀ slightly farther apically to nearly or about midway between base of second vein and end of false vein; that in anal cell extending to near or even level of basal cross vein of fourth posterior cell; second vein apically and upper cubital branch rather sinuous; first posterior cell rather broad, scarcely narrowed, apically; middle cross vein at about from basal third to near middle of discoidal cell (in ♀ usually farther away from base); squamae brownish, with a whitish or very pale yellowish fulvous fringe; halteres brownish, with brownish or brown knobs. *Head* with the interocular space on vertex in ♂ a little less to nearly or about twice and in ♀ about 2 to $2\frac{1}{2}$ times width of ocellar tubercle; antennal joint 3 characteristic, shaped like a short-necked retort, its lower basal part rapidly bulging, its slender part markedly short, shorter than or scarcely as long as or only a very little longer than bulbular or dilated base, its terminal joint remarkably long, styliform, at least half length of and often longer than entire joint; face rather shortish and rounded apically.

Hypopygium of ♂ does not essentially differ from those of the *viduatus*-, *vicinalis*- and *thyridus*-section.

From 11 ♂♂ and 18 ♀♀ (types and paratypes in the South African Museum).

Length of body: about $4-8\frac{1}{2}$ mm.

Length of wing: about $4-7\frac{1}{2}$ mm.

Locality: Cape Flats: Strandfontein (Mus. Exp., Feb. 1949 and March 1951). Western Cape: Leipoldtville-Elands Bay (Mus. Exp., Nov. 1948) (types); Graafwater (Mus. Exp., Oct. 1947). Namaqualand: Wallekraal on road to Hondeklipbaai (Mus. Exp., Oct. 1950). North-western Karoo: Augusfontein near Calvinia (Mus. Exp., Sept. 1947).

Easily recognized by its rather shortish and rounded face, shortish retort-shaped third antennal joints with long, styliform terminal joint, and pale legs. From *vicinalis* which superficially resembles it, it may however at once be distinguished by the long styliform terminal joint of antennal joint 3, shorter slender part of the latter, slightly less extensive dark hairs on pleural part, slightly paler and more pale-scaled legs and slightly broader and less narrowed first posterior cell.

Thyridanthrax bolbocerus n. sp.

This species also belongs to the *vicinalis* and *stylicornis*-section, resembling the latter very closely, but from which it may be distinguished in the following respects:

Body including scutellum entirely black; antennal joints 1 and 2 (more especially 1) also reddish or yellowish red; streak below antennae, lower sides of face and buccal rim also yellowish brownish; legs also yellowish brownish or castaneous brown, the middle and hind ones sometimes darker. *Vestiture* with the hairs on face distinctly much shorter and sparser than in *stylicornis*, appearing less hairy; pale hairs on pleurae and in upper part of mesopleural tuft on the whole slightly less fulvous yellowish and usually more extensive, with slightly less dense black ones on mesopleuron and in propleural tuft; scaling on head in front distinctly more whitish; that on venter also more whitish or at least with more extensive white ones; that on legs also more whitish than yellowish. *Wings* similarly infuscated at base and in antero-costal part, but infuscation in anal cell distinctly less extensive, its hind margin falling short or much short of and not reaching, or in line with, basal cross vein of fourth posterior cell as in *stylicornis*; that at base of discoidal cell also more reduced, confined to extreme base, the clear indentation opposite it usually deeper, bay-like; middle cross vein tending to be at about, or scarcely, or only a little beyond basal third of discoidal cell; first posterior cell, as in *stylicornis*, broad and scarcely narrowed apically. *Head* with the face slightly, but distinctly, longer, about or even a little more than half length of frons from ocellar tubercle to midway between antennae (which in the case of *stylicornis* is scarcely half or slightly less than half length of frons), distinctly more conical and more sharply pointed apically; antennal joint 3 very similar, also ham-shaped or retort-shaped, its basal part even slightly larger, slightly more dilated or bulging below, its terminal joint distinctly shorter, not long and styliiform, usually less than half length of entire joint; antennal joint 1 relatively shorter than in *stylicornis*.

Hypopygium of ♂ with the scoop-like ventral aedeagal process shaped as shown in text-fig. 196, d.

From 9 ♂♂ and 1 ♀, including the types, in the South African Museum.

Length of body: about 5–6 mm.

Length of wing: about 5–6 mm.

Locality: Nieuvelde Escarpment in Beaufort West Dist. (Mus. Exp., Nov. 1935).

Thyridanthrax transiens Bezz.

(Bezzi, p. 134, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 203, *The Bombyliidae of the Ethiopian Region*, 1924; Austen, p. 160 and fig. 8, *Bull. Ent. Res.*, xx, 1929.)

This species which Bezzi first mentioned and partly described in 1921 was not described by him before that date as stated in 1921 (p. 134, loc. cit.), but only subsequently in 1924.

It has some superficial resemblance to the ♀ of *abruptus* with which it may be easily confused. It however differs from most species with a basal and antero-costal infuscation in wings and from *abruptus* in particular in the following respects:

It is relatively smaller, usually smaller than small specimens of *abruptus*. *Vestiture* with the scaling behind eyes shining silvery white, even dorsally across occiput; hairs and scales on sides of abdomen distinctly shorter, sparser and not so bushy as in *abruptus*; hairs on pleural part with fewer and less extensive black ones on mesopleuron and prosternal part; prealar bristles not black; white scales on sides basally of tergite 4 tending to be more extensively present. *Wings* (cf. Austen's figure, p. 161, loc. cit.) distinctly much broader and shorter, relatively broader than in all the preceding species, markedly broad across fourth posterior cell; a basal and antero-costal infuscation present in both sexes and to an equal extent, distinctly more extensive than in any other species with this type of infuscation, also occupying about or almost basal half of axillary lobe and extending more extensively into base of fourth posterior cell and occupying quite or almost basal third of discoidal cell and also extending a little beyond middle cross vein and base of second vein; first posterior cell markedly broad apically, not narrowed, tending to be as broad apically as second posterior cell and even as broad as or scarcely narrower than third apically; fourth posterior cell remarkably broad apically, relatively more so than in all the preceding species, including *abruptus*; discoidal cell relatively broad; middle cross vein nearer middle of discoidal cell than in most other species; halteres whitish, with conspicuously whitish or ivory white knobs. *Head* with the third antennal joints pestle-shaped, club-shaped or even bulb-shaped, not so subconical as in *abruptus*, more rapidly dilated below to bulbular base, the terminal joint shortish, scarcely or only a little longer than joint 2. *Hypopygium* of ♂ with the apical angles of last sternite obtusangularly rounded (text-fig. 197, left); aedeagal process as in right-hand figure.



TEXT-FIG. 197. Side view of last sternite (left) and ventral view of aedeagal process (right) of hypopygium of ♂ *Thyridanthrax transiens* Bezz.

In the Transvaal and South African Museums, National Museum of Southern Rhodesia and Commonwealth Institute.

Length of body: about $3\frac{1}{3}$ – $6\frac{1}{2}$ mm.

Length of wing: about $3\frac{1}{3}$ –6 mm.

Locality: Zululand, Transvaal, Portuguese East Africa, Southern Rhodesia and South-West Africa.

This species has also been bred from puparia of the tsetse fly *Glossina morsitans*, but as in the case of *abruptus*, *lugens* and *brevifacies* it also occurs in regions where there are no tsetse flies and like them probably also parasitizes other species of Diptera.

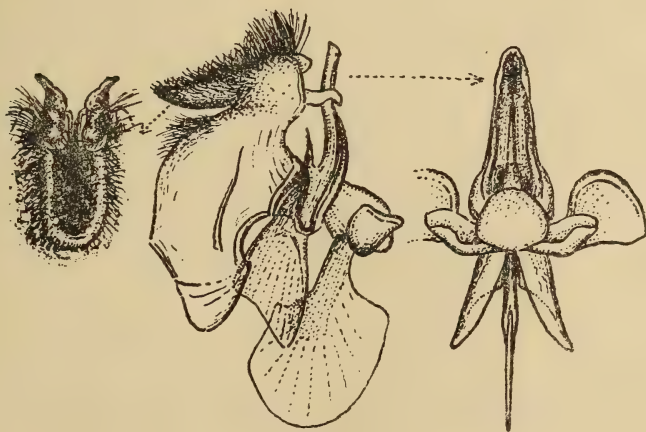
Thyridanthrax lutulentus Bezz.

(Bezzi, p. 474, *Ann. S. Afr. Mus.*, xviii, 1921.)

This remarkable species which Bezzi described in an appendix to his paper on the Bombyliid Fauna of South Africa was entirely overlooked in his monograph of the family in 1924. It is provisionally placed here at the end of Group I because it has some characters in common with the latter series, but it also shows certain characters which are peculiar to the next group and thus constitutes a sort of transitional species. It, however, shows a few important aberrant characters which are not present in any other South African species of *Thyridanthrax* and which suggest its removal to a group if not a genus of its own. In view of the fact that the genus *Thyridanthrax*, as now constituted, appears to be a composite genus containing at least two diametrically opposed groups of species it is, however, not advisable to split it up into separate genera at this juncture without a careful study and comparison of all the Palaearctic, Oriental and American species now assigned to this genus. This aberrant species is characterized as follows:

Body black; antennal joints 1 and 2 yellowish reddish; oblique bare streak below each antenna, anterior part of buccal cavity and sometimes apex of face above yellowish; rest of buccal cavity and palps dark brownish to reddish brownish; disc of scutellum to a variable extent and in ♂ sides of tergites 2 and 3 reddish brownish or ferruginous; proboscis and legs very dark reddish brownish to black, the tibiae sometimes slightly paler reddish brownish. *Vestiture* with the hairs on head in front and on antennae black, those on face relatively dense and longish on sides; collar, upper parts of pleurae and mesopleural tuft yellowish to deep chrome yellowish; that on lower parts of propleurae, prosternum and pleurae mostly black or dark blackish brown, though some yellowish or pale hairs are sometimes intermixed on prosternum; metapleural tuft yellow or chrome yellow; streak of hair-like scales on each side of thorax above sericeous whitish or yellowish whitish in certain lights; hairs on thorax and scutellum above, prealar bristles, scutellar bristles, hairs on coxae, dense hairs on sides of tergites, on abdomen above in ♀, from apical part of tergites 2 to 5 in ♂ as well as hairs across hind margins of these tergites, and all the hairs on venter, except in ♂ on last sternite, black; postalar bristles pallid or yellowish and tuft on each side at base of abdomen and hairs on last two tergites white; scaling on head in front consisting of black and brassy ones; that behind eyes gleaming snow-white or silvery; scaling on thorax and scutellum above dark in certain lights, but gleaming greyish silvery or graphite-like, showing iridescence in others; scaling on abdomen above and below predominantly black, but with a broad, con-

spicuous, transverse band of white scales across more than basal half of tergite 3 and in ♂ with very conspicuous, elongated, lanceolate, transversely arranged, brilliantly shining, silvery white ones across entire 6 and 7, which in ♀ are represented by a band of longitudinally arranged, white ones, broadly interrupted discally on both segments; scaling on legs dark or blackish, gleaming greyish or graphite-like. *Wings* entirely hyaline, iridescent, but the base and costal cell tinted subopaquely yellowish; veins yellowish or luteous, slightly more brownish in apical part of wing; second vein not very deeply recurved apically; first posterior cell relatively narrow, narrower than in most other species, narrowed apically; middle cross vein a little or just before middle of discoidal cell; third posterior cell long, its base nearer to base of fourth than in most other species; squamae pale yellowish, fringe snow-white; knobs of halteres very pale yellowish whitish, almost white. *Head* with the central depression on frons distinct, somewhat transverse; occiput with a distinct foveate depression behind vertex; interocular space in ♂ nearly twice width of ocellar tubercle, about or a little less than three times tubercle in ♀; face markedly short, not normally or sharply conical, more bluntly rounded and convex; antennal joint 3 conical, more so than in any of the preceding species, gradually tapering from broad base, the slender part rather stoutish, ending apically in a distinct slender terminal joint bearing a style, the former at least as long as antennal joint 2; proboscis with the labellae elongate, projecting slightly beyond buccal cavity. *Legs* with the hairs on outer sides of front and middle femora longish and conspicuous, more so than in all the preceding species; middle femora with about 3 or 4 spines on outer lower aspect of which two are long; hind ones with 5-7 spines below and some stiffish hairs and also apical spinelets above; modified front tarsi in both sexes distinctly somewhat



TEXT-FIG. 198. Side view of hypopygium, apical view of apical part of shell-like basal parts with the beaked apical joints and ventral view of aedeagal apparatus of ♂ *Thyridanthrax lutulentus* Bezz.

compressed apically, more so than in all the preceding species, their claws connate, unequal in size, the outer one shorter than inner one; rest of claws rather slender, only slightly curved; hind tibiae with the spicules in outer upper row more numerous, denser, closer together than in other rows; scales on hind femora and tibiae, especially on the latter, longish, appearing feathery. *Hypopygium* of ♂ (text-fig. 198) entirely different from all the preceding species, with the crest on each basal part prominently produced, freely projecting posteriorly and united apically to form a U-shaped process (see left-hand figure and middle figure), the crest with short, stoutish, spine-like bristles and longish hairs; middle dorsal part of beaked apical joints much raised, prominent and projecting; aedeagal process long, tongue-shaped, narrowed apically, hollowed out ventrally. Last sternite of ♂ resembling that of *lloydi* (cf. text-fig. 184), but dorso-apical angle more truncate and the indentation shallower.

Type in the South African Museum.

Length of body: about $7\frac{1}{2}$ –11 mm.

Length of wing: about 7–9 mm.

Locality: South-West Africa: Otjivarongo (Brown, April 1921) (♀-type); Kamanjab (Mus. Exp., March 1925) (♂♂ and ♀).

A remarkable species easily recognized by its hyaline wings, deep yellowish hair in collar and upper parts of pleurae, black hairs on body below, black scaling on abdomen above, transverse, silvery scaling on last two tergites in ♂♂, connate front claws, etc.

Group II

Species with a fenestrate-pattern in wings (text-figs. 201 and 204), having characteristic, clear or hyaline, window-like spots on the cross veins and with the infuscation extending to about or very near or even beyond middle of fourth posterior and discoidal cells, and sometimes with three submarginal cells; spicules in outer upper row on hind tibiae always closer together, denser, more numerous, and the scales on hind tibiae tending to be longer, more feathery; a conspicuous streak of whitish hairs or hair-like scales on each side of thorax above wanting; hairs on face and sides of abdomen relatively dense, more shaggy in appearance; front part of frons, the face and sides of abdomen usually extensively yellowish; and a terminal joint-like element to third antennal joint wanting or not visible.

Thyridanthrax subperspicillaris Bezz.

(Bezzi, p. 84, *Broteria* (Ser. Zool.), xx, fasc. ii, 1922; Bezzi, p. 207, *The Bombyliidae of the Ethiopian Region*, 1924.)

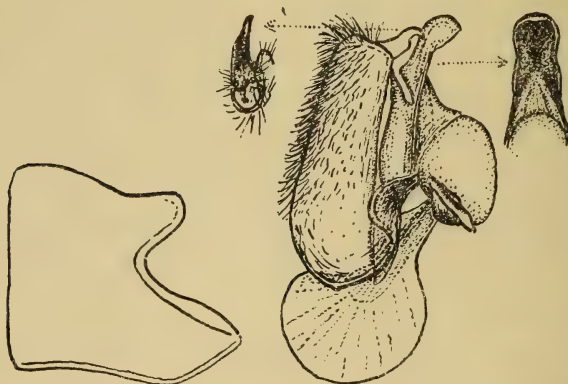
Some ♂♂ and ♀♀ in the collections before me agree with Bezzi's descriptive notes of this species which he based on a ♂-specimen from Kenya and some

other specimens from Eastern Cape and the Transvaal. It is characterized as follows:

Body black, but with the usual yellowish parts; greater part of scutellum (excepting the black base), broadish hind margins of tergites as well as last or last two tergites, or sometimes even greater part of abdomen (excepting only a black, basal and discal triangle tapering to tergite 4, more extensive in ♀), and in both sexes hind margins of sternites, sometimes almost entire venter in ♂, and the genital segment yellowish to yellowish reddish or ochreous yellowish; femora dark blackish brown, the apical halves or parts and lower surfaces of front and middle ones to a variable extent and the tibiae yellowish to luteous. *Vestiture* with the hairs on frons, antennae, sparsely on face above, denser on face anteriorly, fine hairs on thorax and scutellum, some scutellar bristles, bristly hairs intermixed on sides of abdomen from apex of tergite 2 to 5, usually denser on sides of 2 and 4 and 5, and hairs across hind margins of 2-5 black; hairs in collar, upper anterior part of mesopleural tuft and in lower part of metapleural tuft yellowish to fulvous yellowish, but sometimes more whitish, especially the mesopleural tuft; prealar, postalar and scutellar bristles sericeous whitish or yellowish or even reddish yellow; bristly hairs on last two tergites, intermixed ones on sides of abdomen and hairs on venter gleaming sericeous whitish; rest of hairs and scales on face, pleurae and base of abdomen conspicuously snow-white, the scaling on pleurae denser than in group I; scaling on thorax and scutellum above gleaming greyish yellowish to brownish yellowish or even bronzy in certain lights; that transversely across front part more whitish and with dense, longish, white ones in front of wings; scaling on abdomen above black on tergite 2, across apex of 3 and narrowly across bases of 4 and 5, yellowish to ochreous yellowish or even ochreous brownish across base of 2, middle and hind margin of 4 and across hinder part of 5, and snow-white on each side basally of 2, broadly across 3, on sides basally of 4, across hind margin of 6 and on entire 7 and also on sides of abdomen; that on venter whitish; that on legs slightly yellowish on femora above, whitish below, yellowish whitish to whitish on tibiae, becoming darker towards apices of hind ones. *Wings* with a pattern composed of a pale yellowish whitish and yellowish brownish to brownish infuscation; the paler yellowish confined to basal part up to near base of third vein and in marginal and first basal cells and apical part of second basal cell opposite and in front of base of discoidal cell; the darker brownish infuscation present across base of third vein and from opposite base of discoidal cell more or less to level of apex of costal cell and across basal parts of first submarginal and first posterior cells and basewards just below upper vein of discoidal cell across more than basal half of the latter, across at least basal third of third posterior cell, basal half of fourth posterior cell and leaving only apical fourth of anal cell and slightly less than apical half of axillary lobe clear; rest of wings greyish hyaline, but with the fenestrae on middle cross vein, base of second vein, base of fourth posterior cell and at base of third posterior cell more whitish; veins yellowish, darker in infuscated part; base of upper fork

of cubital branch sometimes with a slight stump; middle cross vein just before or just beyond middle of discoidal cell; first posterior cell narrowed apically; squamae whitish or yellowish whitish, white-fringed; halteres yellowish, their knobs very pale, almost white. *Head* with the face conical, broad; occiput without a foveate depression behind vertex; antennal joint 3 conical, gradually tapering, ending apically only in a short stylar element. *Legs* with usually 2, but sometimes 3 or 4, spines on middle femora in front and some spinelets behind; hind ones with 5-11 spines below and some spinelets laterally and apically above.

Hypopygium of ♂ (text-fig. 199) without hooks to aedeagal process and basal parts without a dorsal carinate ridge. Last sternite of ♂ (text-fig. 199, left) with the dorso-apical angles slightly produced and rounded.



TEXT-FIG. 199. Left: Side view of last sternite of ♂ *Thyridanthrax subperspicillaris* Bezz. Right: Side view of hypopygium, dorsal view of right beaked apical joint and ventral view of aedeagal process of ♂ of same species.

In the South African and Transvaal Museums.

Length of body: about 7-12½ mm.

Length of wing: about 7-12 mm.

Locality: Little Karoo, Great Karoo, North-eastern Karoo and Namaqualand.

Easily recognized by its *perspicillaris*-like type of wing-pattern, the discoidal cell which is infuscated to a little beyond middle from which there extends an infuscation just below upper vein to near or about apical fourth of the cell. This species is probably variable and some specimens appear to be bridging forms between this species and the next species *calochromatus*. A ♂ from the Koup Karoo in the South African Museum has a wing-pattern which is intermediate between the two species. It also differs from a typical *subperspicillaris* in having the scutellum and greater discal part of abdomen dark.

Thyridanthrax calochromatus Bezz.

(Bezzi, p. 135 and pl. ii, fig. 23, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 195, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Replacing as name of topotypical form the atypical *macquarti* Bezz., p. 626 and pl. L, fig. 5, *Trans. Ent. Soc. Lond.*, 1911 (1912), and fig. 17 in *The Bombyliidae of the Ethiopian Region*, 1924, as alternative name for preoccupied name *fenestralis* (Macq.).)

This species is the original *fenestralis* which Macquart described from the Cape in 1840 (p. 63 and tab. 20, fig. 5, *Dipt. Exot.*, ii) and which on account of the preoccupation of the same name by Wiedemann for a South American species, Bezzi changed to *macquarti* in 1911 (1912) and 1924 (loc. cit.). The latter, from Bezzi's description and some specimens in the collections before me, is, however, not entirely typical, but is a slight northern variety of the typical South African *fenestralis* (Macq.) of which Bezzi's *calochromatus*, described from the Cape in 1921, is without doubt a synonym. The latter represents the typical South African *fenestralis*, and being a topotype its name *calochromatus* should have priority over the slightly atypical *macquarti* in replacing the preoccupied name of *fenestralis* and as such it is here designated.

Thyridanthrax calochromatus resembles *subperspicillaris*, but differs in the following respects:

Body with the reddish on abdomen, even in ♀, more extensive and with only extreme apices of front and middle femora yellowish. *Vestiture* with the transverse band of black scaling across tergite 2 even more conspicuous and black scales across hind margin of tergite 3 and base of 4 absent or very sparsely represented; these two tergites also with more white and whitish scaling especially across 4, thus appearing together as a broad whitish or pale transverse band; scaling on 5 also paler, more yellowish than brownish. *Wings* with the pattern distinctly more reduced, the border of the infuscation extending apically and posteriorly to only the base and not basal third or half of first posterior cell, to scarcely or only about middle of discoidal cell and posteriorly to much before middle of anal cell; a broader posterior part and apical part of wings thus hyaline; yellowish whitish basal part distinctly more extensive and broader, the darker brownish band across wings much narrower, the former extending for a much greater distance in anal cell and more than half or greater part of second basal cell, a first dark basal infusion across wings thus not evident and with a much smaller spot near base of first basal cell opposite base of third vein. *Hypopygium* of ♂



TEXT-FIG. 200. Side view of last sternite of ♂ *Thyridanthrax calochromatus* Bezz.

like that of the preceding species, but last sternite (text-fig. 200) not deeply emarginate along its dorsal margin and its dorso-apical angles not so conspicuously produced; beaked apical joints relatively longer; aedeagal process smaller, but middle part of aedeagal apparatus smaller.

Type and other specimens in the South African Museum and two specimens in British Museum.

Length of body: about 6-11 mm.

Length of wing: about 6-10½ mm.

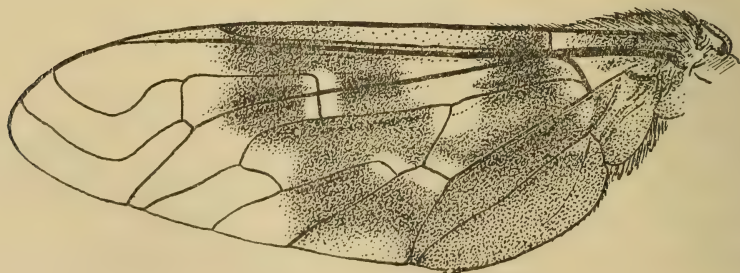
Locality: Southern Karoo, Tankwa Karoo, Koup Karoo, Great Karoo, Namaqualand and South-West Africa.

The species *macquarti* Bezz. is not entirely typical, but differs from the typical *fenestralis* (*calochromatus*) in having the transverse dark band in wings darker; spot at base of third vein much smaller; infusion at apex of second basal cell larger; sides of tergites 5 and 6 and base of 6 with distinctly more numerous and more conspicuous black scaling; and with less red on abdomen of ♀ above, the greater part of disc of tergites 3 and 4 and 5-7 being black. This form is represented in the Commonwealth Institute and the Agricultural Department of Southern Rhodesia by specimens from Southern Rhodesia.

Thyridanthrax ternarius Bezz.

(Bezzi, p. 136 and pl. ii, fig. 24, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 209 and fig. 18, *The Bombyliidae of the Ethiopian Region*, 1924.)

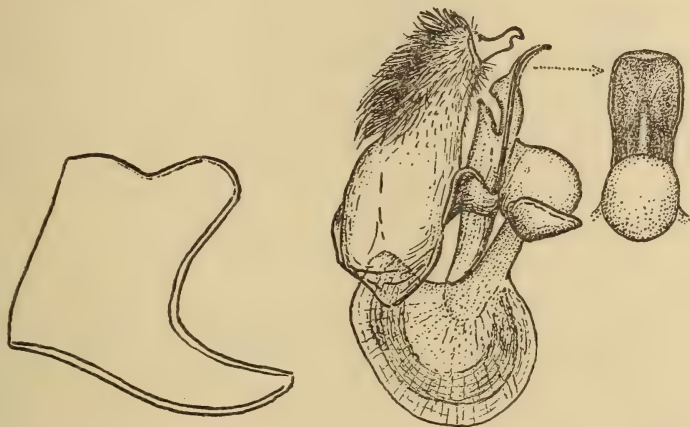
In 1921 (loc. cit.) Bezzi referred some South African specimens to this species, but only described the species in 1924 (loc. cit.). Though basing his description upon an assemblage of specimens from West and East Africa, Central Africa and various localities in the Cape Province and Transvaal, and even as far north as Arabia, and designating a ♂ and a ♀ from Gambia as the types, it is evident that the description itself appears to have been based chiefly on the South African specimens. From material in the collections before me it is quite evident that the Rhodesian specimens which resemble the South African forms



TEXT-FIG. 201. Left wing of ♀ *Thyridanthrax ternarius* Bezz.

and which I have described below as a separate species (*speciosus*) differ from their South African congeners in important respects. It is more than probable that Bezzi's assemblage may include more than one species. The characters of this species, as based on the South African specimens before me and to a large extent also on Bezzi's description, are as follows:

Body black; more than anterior half of frons, face, antennal joint 1 and sometimes 2, buccal cavity and palps yellowish, but in many specimens with a small and variable dark spot discally on face; scutellum, excepting base and



TEXT-FIG. 202. Left: Side view of last sternite of ♂ *Thyridanthrax ternarius* Bezzi. Right: Side view of hypopygium and ventral view of aedeagal process of ♂ of same species.

extreme sides and sometimes extreme hind border, sides of tergites 2-4 or even entire abdomen in ♂ and sometimes sides of 2 and 3 to a much lesser extent in some ♀♀ and hind margins of sternites (more broadly or even entire venter in ♂) reddish or reddish yellowish; femora dark blackish brown or black, their extreme apices and the tibiae yellowish; tarsi darker. *Vestiture* with straw-coloured yellowish to yellow hairs in collar, propleural part and upper part of mesopleural tuft; whitish hairs on prosternal part; white hairs and hair-like scales on pleurae; a white metapleural tuft of which lower part is sometimes slightly yellowish; whitish hairs and scaling on sides of face; snow-white hair-like scales in front of wing-bases; yellowish or yellowish brown hair-like scales in streak above each wing; thoracic and scutellar bristles yellowish or reddish golden; predominantly black hairs on abdomen which are, however, white on sides basally and on sides of tergites 4, intermixed with black ones on sides of 3, on last two tergites in ♂, medially on last two in ♀ and on entire venter; hairs on sides of abdomen rather dense, longish, tuft-like; scales gleaming yellowish or yellowish brownish on thorax, more whitish across front part; black on abdomen above, but whitish on sides basally on tergite 2, broadly white on sides

of 3 and 4, leaving a central triangle of black scales on each; white in a discal triangle on 6 and white on entire 7 and on venter where some yellowish or brownish scales are present across base of sternite 5; scales on legs whitish to yellowish whitish, but sometimes more yellowish on femora above. *Wings* with a pattern as shown in text-fig. 201; three submarginal cells usually present; fourth posterior cell long, its base very near apex of second basal cell; middle cross vein a little beyond middle of discoidal cell; squamae yellowish whitish, yellowish to very pale yellowish brownish and white-fringed; halteres yellowish, their knobs pale yellowish or almost white. *Head* with the anterior frontal part and face rather broad; occiput without a foveate depression; antennal joint 3 elongate-conical. *Legs* with 2 or 3 longish spines on anterior aspect of middle femora and a variable number of smaller spinelets on posterior aspect; hind ones with about 6–12 spines on lower outer part, some spines basally on inner aspect and some spinelets apically above. *Hypopygium* of ♂ (text-fig. 202) with the last sternite shaped as shown on left; aedeagal process broad and shaped as shown on right; aedeagus itself short.

In the South African, British and Transvaal Museums.

Length of body: about 9–15½ mm.

Length of wing: about 9–15½ mm.

Locality: Koup Karoo, Karoo, Namaqualand, Eastern Cape, North-eastern Karoo, South-West Africa, Bechuanaland and Transvaal.

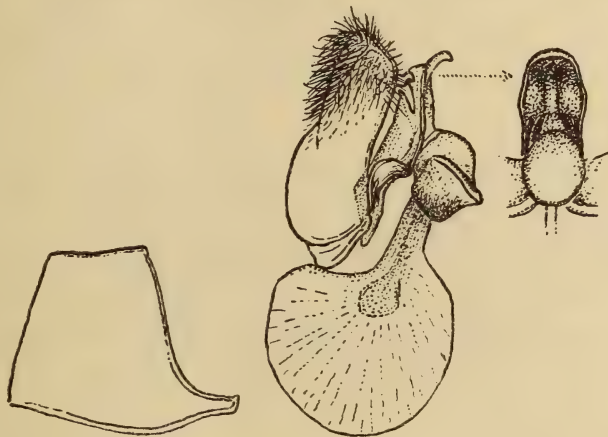
Bezzi does not exclude the possibility that this species may be the same as that described by Wiedemann from the Cape as *Anthrax caffra* (p. 275, *Aussereurop. Zweifl. Ins.*, i, 1828). Without access to the original type-specimen it is, however, impossible to verify this from Wiedemann's description.

Thyridanthrax idolus n. sp.

(Syn. = *ternarius* Hesse, nec Bezzi, p. 174, *Ann. Transv. Mus.*, xviii, 1936 (as *Hemipenthes*).)

This species so closely resembles *ternarius* that it may almost be considered as merely representing a variety or form of it. It, however, differs from the latter in having the apical and hind borders of the infuscation in the wings distinctly and constantly more sharply marked off from the clear parts, the clear parts apically in third and fourth posterior cells and at apices of anal and axillary cells being very clear and sharply marked off; only two submarginal cells constantly present, but base of upper branch of cubital fork with a basally directed and not upwardly directed, short stump; second posterior cell usually shorter and broader, usually much broader apically than basally; abdomen with the red more developed, the hind margins of last tergite in ♂ and also in ♀ very much broader; discal part of face more constantly without the dark spot; bristly hairs in lower part of mesopleural and metapleural tufts, on coxae and pale ones on sides of abdomen gleaming more reddish golden; black tufts on sides of

tergites 2, 3, 5 and 6 sparser and absent on 7; pale scaling on abdomen above cream-coloured or yellowish or greyish whitish, the band on sides basally of tergite 2 much broader and those across 3 and 4 almost uninterrupted across base discally and much narrower across the hinder part, and tergites 5 and 6 with much yellowish or ochreous yellowish scaling even laterally. Last sternite in ♂ (text-fig. 203, left) differs from that of *ternarius* in not being emarginated



TEXT-FIG. 203. Left: Side view of last sternite of ♂ *Thyridanthrax idolus* n. sp.
Right: Side view of hypopygium and ventral view of aedeagal process of ♂ of same species.

along dorsal margin and thus having no process. *Hypopygium* of ♂ (text-fig. 203, middle) differs in having the apical part of basal parts more pointed and longer; aedeagal process (right) shorter; posterior strut much longer and the lateral ones more developed.

From 7 ♂♂ and 8 ♀♀ (types and paratypes in the South African Museum and some paratypes in the Transvaal Museum).

Length of body: about 9–13 mm.

Length of wing: about 9–13 mm.

Locality: Karoo: Richmond (Mus. Exp., Nov. 1939; Murraysburg (Mus. Exp., Nov. 1935); Willowmore (Brauns, 20 Dec. 1921); Colesberg (Brauns, 15 Nov. 1917 and Mus. Exp., Nov. 1939). East Cape: Gardiners Drift near Adelaide (Mus. Exp., March 1954). Griqualand West: Kuruman (Mus. Exp., Oct. 1939). Namaqualand: Kamieskroon-Springbok (Mus. Exp., Oct. 1939) (allotype); Knersvlakte (Mus. Exp., Oct. 1939) (holotype). Bushmanland: Jakkalswater (Lightfoot, Oct. 1911). South-West Africa: Kamanyab (Mus. Exp., March 1925); Outjo (Mus. Exp., Jan. 1925); Windhoek (Wilde). Bechuanaland: Damara Pan (Vernay-Lang Kal. Exp., 15–21 April 1930).

Thyridanthrax speciosus n. sp.

These specimens may almost be considered as representing an extreme variety of *ternarius*, but as they differ in some important respects they are referred to a separate species. From *ternarius* they differ in the following respects:

Wings with the infuscation much darker or black, more uniform, slightly more extensive, leaving less of the apical parts of first submarginal and discoidal cells clear; costal cell also more uniformly dark; the base also extensively black and the break across bases of basal cells indicated only by faint, almost obsolete, yellowish whitish spots; alula, axillary lobe and base of anal cell as dark as or almost as dark as rest of infuscation; basal comb black; veins darker, blackish brown or very dark brown; middle cross vein farther beyond middle of discoidal cell; squamae very dark blackish brown. *Head* with the entire frons and discal part of face black, only the sides of face and buccal cavity yellowish. *Vestiture* with some prealar bristles, numerous bristly hairs anteriorly in lower part of mesopleural tuft, some ones intermixed in metapleural tuft, many bristly hairs on coxae, numerous hairs discally across hind margin of tergite 1 black; dense tufts on sides of tergites 2 and 3 and 5-7 and all or most of the hairs on last three or four sternites also black; transverse bands of white scaling on tergites 3 and 4 more broadly interrupted by black scaling discally and also with much black scaling on venter posteriorly; tergite 2 apparently lacks white scaling basally on sides, but on the other hand there are some white scales across hind margin on sides of 5 which in *ternarius* are yellowish. *Legs* entirely very dark or blackish and even the tibiae, though slightly more reddish brownish than femora, not yellowish. *Hypopygium* of ♂ differs in having the posterior projecting basal strut relatively smaller and the aedeagal process relatively shorter, more rounded. Last sternite of ♂ with the dorso-apical lobe distinctly longer, the emargination on each side distinctly much deeper.

From 4 ♂♂ and 1 ♀ (holotype in Rhodesian Museum, allotype in the Commonwealth Institute).

Length of body: about 11-13 mm.

Length of wing: about $10\frac{1}{2}$ - $12\frac{1}{2}$ mm.

Locality: Southern Rhodesia: Matopos (Rhod. Mus., 14 Sept. 1924) (holotype); Matopo Hills near Bulawayo (Ogilvie, 10 Oct. 1931); Zimbabwe (Cockerell, Sept. 1931) (allotype).

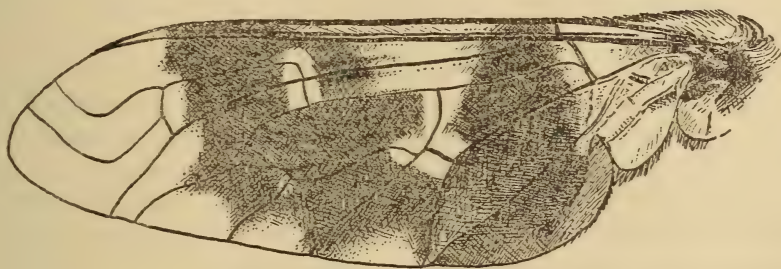
Thyridanthrax laetus (Lw.)

(Loew, p. 224 and tab. ii, fig. 23, *Dipt. Faun. Südaf.*, i, 1860 (as *Exoprosopa*); Bezzi, p. 137, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 211, *The Bombyliidae of the Ethiopian Region*, 1924.)

Of all the species of *Thyridanthrax* this species resembles an *Exoprosopa* more than any other, and if it was not for the absence of a basal tooth to the claws and the absence of a distinct and well-marked-off terminal joint or style to the third

antennal joint there are few other characters of sufficient importance to exclude it from the latter genus. It is characterized as follows:

Body mostly yellowish or yellowish reddish; a spot around ocelli or behind them, sometimes the upper or upper lateral parts of occiput, thorax above, extreme base of scutellum (or medial basal spot), discal part of tergite 1, central discal parts of 2-4 (or base of 5) (more or less in form of three triangles in ♀ of which that on 2 is the largest and which in some ♂♂ are much narrower and inverted, their bases extending across bases of segments), the sternal parts, infusions on the pleurae and in ♀ sometimes bases of sternites dark or black; scutellum and sides of tergites 1-3 usually more ferruginous reddish or the latter more salmon pinkish; legs yellowish, only apical parts of tarsi darkened;



TEXT-FIG. 204. Left wing of ♀ *Thyridanthrax laetus* (Lw.).

antennal joint 3 and proboscis blackish brown. *Vestiture* with the hair mostly pale sericeous yellowish to golden yellowish or yellow; that on sternal parts and venter paler yellowish or sometimes more whitish to even snow-whitish in some specimens; hinder upper part of mesopleural tuft, metapleural tuft, tuft at base of abdomen and hairs at base of venter whitish; tufts on sides of tergites 3 and 4 and hairs on abdomen posteriorly also tending to be more whitish or even white; hairs on face and frons in some ♂♂ entirely yellowish, but usually hairs on frons dark or black; tufts on sides of tergites 2 and 3 and 5 and 6, as well as bristly hairs across 5 and 6 discally and those on black parts, black, though in some ♂♂ all the bristly hairs on abdomen may be golden yellowish; scales on body distinctly finer, more hair-like than in other species in this group, mostly yellow to ochreous yellowish; that on sides of face and genae white; that on thorax more or less in streaks; scaling behind eyes white, yellowish white to yellow; pale scales on abdomen, especially on tergites 2-4, sometimes more cream-coloured than yellowish and that centrally on 6 and on greater part of 7 more whitish or snow-white like the hair-like scales on pleurae and venter; a central patch basally on scutellum and the scaling on black parts on abdomen, as well as those broadly across base of tergite 5 and sides of 6, black; scaling on legs yellowish whitish to yellow, with some dark or blackish ones sometimes present on anterior surfaces of middle femora. *Wings* as in text-fig.

204, with an extensive pattern of brownish or chocolate-brownish infuscation and subopaquely yellowish whitish cross bands and fenestrate spots; veins yellowish reddish or reddish; three submarginal cells present; middle cross vein beyond middle of discoidal cell; the latter rather long, its apical cross vein distinctly S-curved; fourth posterior cell long, its base very near apex of second basal cell; squamae yellowish, white-fringed; knobs of halteres very pale. *Head* with the ocellar tubercle situated rather far forwards; interocular space broad in ♂, at narrowest part on vertex, about 2-3 times width of tubercle and in ♀ a little more than three times width of tubercle; occiput without a foveate depression behind vertex; frons without a central impression; antennal joint 3 elongate-conical, its apical part or half rather slender, a distinct terminal joint (though present) not distinctly demarcated. *Legs* with more or less two rows of shortish spines on middle and hind femora below, those in posterior row usually smaller; hind tibiae with dense and numerous spicules in upper outer row; claws slender, the front ones relatively slightly less reduced than in preceding two species. *Hypopygium* of ♂ resembles that of *idolus*, but the posterior strut is much smaller and shaped more like that of *ternarius* and *speciosus*. The last sternite of ♂ (text-fig. 205) has a dorso-apical process like that of *ternarius*, but this process is directed more posteriorly.

In the Albany, South African and Transvaal Museums.

Length of body: about $10\frac{1}{2}$ – $14\frac{1}{2}$ mm.

Length of wing: about $10\frac{1}{2}$ – $14\frac{1}{2}$ mm.

Locality: Koup Karoo, Eastern Cape, Eastern Transvaal, Southern Rhodesia and South-West Africa.



TEXT-FIG. 205. Side view of last sternite of ♂ *Thyridanthrax laetus* (Lw.).

Species incertae sedis

Species described from South Africa, and supposed to belong to *Thyridanthrax* (see Bezzi, p. 22, *The Bombyliidae of the Ethiopian Region*, 1924), which I have not seen or which I have not been able to identify.

Anthrax apparens Walk., p. 180, *Insecta Saund. Dipt.*, iii, 1852.

Anthrax argentilatus Walk., p. 142, *Trans. Ent. Soc. Lond.*, iv, 1857.

Anthrax caffra Wied., p. 275, *Aussereurop. Zweifl. Ins.*, i, 1828.

Anthrax commiles Walk., p. 141, *Trans. Ent. Soc. Lond.*, iv, 1857.

Appendix to *Thyridanthrax*

East African species of *Thyridanthrax* parasitizing Tsetse flies, but not occurring in Southern Africa

A small collection of species of *Thyridanthrax* from Tanganyika, Tanganyika (Kenya Coast) and Kenya which was bred from puparia of *Glossina austeni*,

G. brevipalpis and *G. pallidipes* by Mr. E. Burt, was kindly submitted to me by the British Museum after I had already completed the revision of the South African species in manuscript form. As these East African forms do not appear to occur in Southern Africa and as they were obtained after my key to the South African species had been completed, descriptions of them are appended here at the end of the South African forms.

This collection includes at least two species which are new and which have not been described either by Bezzi in his *Bombyliidae of the Ethiopian Region*, 1924, or by Austen in his revision of those species of *Thyridanthrax* parasitizing species of *Glossina* in Nigeria and Central and East Africa (pp. 151-64, *Bull. Ent. Res.*, xx, 1929). Neither do they agree with any of the tsetse-fly parasites from Southern Africa described by me in this revision. The species are:

Thyridanthrax alliopterus n. sp.

Body mainly black; sides of face below antennae with usual yellowish streak; hind margin or hind border of scutellum ferruginous reddish to a variable extent; sides of tergites 2 and 3, especially in ♂, sometimes sides of rest of tergites obscurely, and hind margins of sternites yellowish reddish or reddish to a variable extent; postalar calli and to a variable extent sutural parts of pleurae castaneous brownish or reddish brown; legs brownish or muddy brownish, castaneous brown to blackish brown, the tibiae paler, more yellowish. *Vestiture* with the hairs on head in front and on antennae fairly dense, entirely black; fine scaling on frons and face, excepting a transverse patch of black ones across middle of frons, yellowish; scaling on occipital part also yellowish, becoming paler or more greyish yellowish or yellowish white on sides; hairs anteriorly in collar above, on humeral tubercle, in upper part of mesopleural tuft and hinder part of metapleural tuft straw-coloured yellowish to almost whitish in certain lights, especially in collar; hairs on pleurae and coxae mainly or entirely dark or black; hairs on thorax above, prealar, postalar and scutellar bristles, hairs anteriorly in metapleural tuft, those on abdomen above, denser and longer ones on sides of abdomen from apical half of tergite 2 (where tuft is very conspicuous) to apex and those on sides and posterior part of venter also black; fine scaling on thorax above ochreous or reddish brownish, more or less separated by streaks of dark ones, those across base and also hind border of scutellum paler, gleaming more yellowish, whitish or greyish whitish; streak of dense hair-like scales on sides of thorax above conspicuous, silvery whitish; plumula and especially hairs on sides of tergite 1 and base of 2 on sides, and some in tuft on sides of 3 white; hairs in basal half, especially medially, on venter also white or whitish; scaling on abdomen above composed of white, greyish white or greyish yellowish and black ones; the white ones as a dense and conspicuous transverse band across base of tergite 3, as a small patch on sides of 4 and densely on sides of 6 and 7, those on sides of 3, 6 and 7 long, forming a dense tuft; rest of pale or more greyish or yellowish white ones present across hind margins of tergites 1 (more

on sides), 4, 5, 6 and 7 discally; black ones more extensive, occupying the surface not taken up by the pale ones, being long, dense and in conspicuous tufts on sides apically of tergite 3 and on sides of 4 and 5 and in ♀ also across hind margin of last tergite; scaling on venter mainly dark or black; those on legs mainly dark, gleaming more greyish on tibiae, but sometimes also with pale ones intermixed on femora. *Wings* glassy hyaline, but with the base, costal cell up to end of false vein and antero-basal part infuscated dark blackish brown, this infuscation in ♀ slightly different from that of ♂, more extensive, occupying base, costal cell, at least basal half of marginal cell to some distance beyond base of second vein, entire or greater part of first basal cell (excepting only a narrowish subapical clear streak along its hind margin), extreme base of discoidal cell, entire second basal cell, at least basal half of anal cell and extreme anterior basal part of axillary lobe; infuscation in ♂ distinctly less extensive, leaving an area in marginal cell (just before large dark spot on middle cross vein and base of second vein), almost entire apical half of first basal cell (just before dark spot on middle cross vein) and to a variable extent a subapical spot just before dark spot at apex of second basal cell clear or hyaline, with the infuscation in anal cell much reduced, confined to base or extreme base; large spots on middle cross vein and base of second vein, at base of discoidal cell and at apex of second basal cell darker than rest of infuscation in both sexes and rather conspicuous for this genus, more *Anthrax*-like; first posterior cell narrowed apically, though still broadly open; discoidal cell subacute apically, a little shorter than first posterior cell; middle cross vein distinctly a little beyond middle of discoidal cell; squamae pale yellowish, yellowish white to whitish, with a yellowish whitish fringe; halteres brownish, the knobs pallid apically above. *Head* with the interocular space on vertex rather narrowish, about $1\frac{1}{3}$ – $1\frac{2}{3}$ (or even 2) times width of ocellar tubercle in ♂ and about 2 times this width in ♀; face markedly short, even slightly or distinctly less than a third length of frons (from between antennae to front ocellus); antennal joint 3 club-shaped or pestle-shaped, rather rapidly narrowed from broad base, the slender part scarcely or only a little longer than base, its terminal joint about as long as or slightly longer than joint 2. *Legs* with rather longish and conspicuous, bristly hairs on hind femora below in basal half and about 2–4 spines in apical half below.

From 12 ♂♂ and 8 ♀♀ (types in the British Museum).

Length of body: about $5\frac{1}{2}$ –8 mm.

Length of wing: about 6–8 mm.

Locality: Tanganyika: Moshi (E. Burtt, 25 May 1949, Th. B. 1 (holotype); 2 Sept. 1949 Th. B. 3 (allotype); 8 Sept. 1949 Th. B. 4; 13 Sept. 1949 Th. B. 3, and 14 Aug. 1949 Th. B. 2); Tanganyika (Kenya Coast) (Burtt, Dec. 1951). Kenya: Kenya Coast (19 Jan. 1952 Th. (A) 12; 21 Jan. 1952 Th. (A) 14; 19 Jan. 1952 Th. (A) 13; 21 Jan. 1952 Th. (A) 15; 24 Jan. 1952 Th. (A) 16, and 16 Jan. 1952 Th. (A) 11); Uмба River (Kenya Coast) (11 Dec. 1951).

Easily recognized by the wing-pattern, especially of ♂, the more conspicuous, *Anthrax*-like, darker spots on cross veins, the markedly short face, extensive black

scaling on abdomen above and longish hairs on hind femora below. In my key to the South African species the ♂ would run down to a new couplet or section somewhere near *beneficus* and *viduatus* and the ♀ to near *monticolus* and varieties of *lugens*. The distinctive wing-pattern of the ♂, with the clear areas in the marginal and first basal cells and to a variable extent also in the second basal cell, is reminiscent of *viduatus* (Lw.) and *beneficus* Aust. In *viduatus* the face is however distinctly very much longer, the second basal cell much clearer apically and without a large dark spot, the marginal cell without a distinct clear spot basally and the middle cross vein much before middle of discoidal cell. From *beneficus* it also differs in the same facial and wing characters and also the more extensive dark hairs on pleurae. From *lugens* the ♀ differs in the very much shorter face, much narrower interocular space on vertex, predominantly black hair on pleurae, longer and narrower discoidal cell, postmedial position of middle cross vein, etc. From South African species with a shortish face, such as *brevifacies* and *simmondsi* it differs in the less extensive infuscation in the wings, larger and more conspicuous dark spots on cross veins, postmedial position of middle cross vein and even shorter face. The holotype and one ♂-paratype were wrongly labelled as '*Thyridanthrax abruptus* (Lw.)', a species which is however entirely different and which has predominantly clear wings in the ♂, a much longer face, relatively broader interocular space, more yellowish scaling on abdomen in addition to the white ones, fewer and less extensive dark hairs on pleurae, etc.

Most of the specimens from Kenya Coast were bred from puparia of *Glossina austeni*, whereas the types and some paratypes emerged from puparia of *Glossina brevipalpis* and one ♀-paratype from *Glossina pallidipes*. Specimens bred from the smaller *austeni* are smaller than those bred from the two larger species of tsetse-fly.

Accompanying most of the specimens are their empty pupal skins which are characterized as follows:

Cephalic processes (or chitinous teeth) represented by transverse, carinate ridges, resembling those of *abruptus*, but even less dentately distinct and not projecting prominently or spine-like as in some other species of *Thyridanthrax*.

Length of pupal skin: about 6–8½ mm.

Width of pupal skin at waist: about 2–3 mm.

Thyridanthrax burtti n. sp.

The other, also a short-faced species, which I am naming after Mr. E. Burt who collected both this and the preceding species for the British Museum, is characterized as follows:

Body mainly dark or black; first antennal joints and sometimes also the second, sides or genal part of face to a variable extent and in ♂ (or sometimes also in ♀) sides of tergites 2 and 3 and to a certain extent hypopygium in ♂ yellowish or pallid; hind margin of apex of scutellum narrowly or only obscurely

reddish; postalar calli and sometimes pleurae to a variable extent more castaneous brownish; legs pale yellowish brownish to brownish, but tibiae paler, more yellowish. *Vestiture* with all the hairs on head in front and on antennae black; scaling on head in front, excepting the dark ones across middle of frons and some intermixed dark ones on face anteriorly above, greyish yellowish to dull yellowish; scaling behind eyes forming a circum-occipital girdle and pale creamy yellowish to whitish; hairs in collar above and on greater part of pleurae and in ♂ on last tergite straw-coloured, those on pleurae slightly more sericeous yellowish in certain lights; fine hairs on disc of thorax, prealar, postalar and scutellar bristles, hairs anteriorly in propleural tuft, some fine intermixed ones on mesopleuron, bristly hairs on coxae, hairs on abdomen above and on sides from apical part of tergite 2 and in ♀ on last sternite dark or black; plumula, hairs on sides of tergite 1 and base of 2 and to a certain extent also in metapleural tuft white; fine scaling on disc of thorax ochreous to slightly fulvous yellowish, those basally and densely across hinder part of scutellum more whitish; streak of dense, hair-like scales on each side of thorax white or whitish; scaling on abdomen above composed of white, dull greyish yellowish to buff yellowish (or even ochreous) ones and black ones, the pale scaling being more extensive; the white ones present as an apical patch on each side of tergite 1, a basal patch on each side of 2, a transverse band across base of 3 (denser and longer on sides), a small patch on sides of 4 and in bands across bases or even almost entirely across 6 and 7 (broader, denser and longer on sides); the yellowish ones present across more than basal half of tergite 2, across apical half of 3 and across 4 and 5 and also discally across hinder part of 6; the black scaling mainly across apical part of tergite 2 and sparsely across parts of other segments not occupied by pale ones, those on sides apically of 2, 3, 4 and 5 being longer, more conspicuous; scaling on venter mainly greyish whitish or yellowish whitish; that on legs also mainly greyish whitish to yellowish white. *Wings* glassy hyaline, but base and antero-costal part infuscated yellowish brown or brownish, equally so in both sexes, this infuscation occupying base, costal cell, base of marginal cell to only a little distance beyond base of second vein, entire first and second basal cells, extreme basal corner of discoidal cell, extreme base or usually less than basal third of anal cell; second basal cell with a tendency to be slightly paler yellowish brownish and spot at its apex and that on middle cross vein darker, more blackish brown; first posterior cell slightly narrowed apically; discoidal cell subacute apically, very much shorter than first posterior cell; middle cross vein before middle of discoidal cell; apical part of second vein not much recurved; squamae whitish, white-fringed; halteres pale, their knobs paler, yellowish white. *Head* with the interocular space on vertex in ♂ only about $1\frac{1}{3}$ and in ♀ about $1\frac{2}{3}$ times width of ocellar tubercle; face also shortish, but apparently less so than in preceding species, quite a third length of frons (from between middle of antennae to front ocellus); antennal joint 3 conical, club-shaped, rather rapidly narrowed apically from broad base, more so on lower part, the slender part only a little longer than

broadened base, its terminal joint short, scarcely or only about as long as (or scarcely a little longer than) joint 2. *Legs* with about 3 or 4 spines on hind femora below and without or only a few insignificant bristly hairs below basally.

From 4 ♂♂ and 5 ♀♀ (types in the British Museum).

Length of body: about 5–6¼ mm.

Length of wing: about 5–6 mm.

Locality: Kenya: Umba River, Kenya Coast (15 Dec. 1951 Th. (A) 16) (holotype); Kenya Coast (19 Dec. 1951 Th. (A) 8) (allotype); Umba River (7 Jan. 1951 Th. (A) 10); Kenya Coast (14 Dec. 1951 Th. (A) 3; 15 Dec. 1951 Th. (A) 4 and 5; 16 Dec. 1951 Th. (A) 7, and 24 Dec. 1951 Th. (A) 9); Kibirani (13 May 1953).

Characterized by its short face, extensive pale scaling on body above, yellowish lower parts of face and the ♂-*lugens*-type of infuscation in wings. From *lugens* it may however at once be distinguished by the very much shorter face, less extensively reddish scutellum, less extensively infuscated base of anal cell, apically less recurved second vein and in ♀ distinctly less extensive infuscation in marginal cell. The holotype was wrongly labelled as '*abruptus* (Lw.)', a species which has a much longer face, entirely clear wings in ♂ and a more extensive antero-basal infuscation in wings of ♀. It resembles the Palaearctic *afēr* somewhat in the infuscation of the wings, but apparently differs in the very much shorter face, narrower interocular space on vertex, paler legs, absence of glittering scales on head in front, etc.

In my key to the South African species it would run down to near *nitidifrons* which has a similar type of wing-pattern, but from the latter it differs in not having shining silvery scales on frons in ♂, shorter face and a middle cross vein which is farther away from base of discoidal cell.

This specimen was also bred from puparia of *Glossina austeni*. The empty pupal skins of this species are almost indistinguishable from those of the preceding species.

Gen. *Litorrhynchus* Macq.

(Macquart, p. 78, *Dipt. Exot.*, ii, 1840; Bezzi, p. 629, *Trans. Ent. Lond.*, 1911 (1912); Bezzi, p. 137, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 211, *The Bombyliidae of the Ethiopian Region*, 1924; Paramonow, p. 184, *Acad. d. Sc. de l'Ukraine*, vi, 2 (*Trav. Mus. Zool. Kiev*, 4), 1928; Hesse, pp. 174 and 175, *Ann. Transv. Mus.*, xvii, 1936; Oldroyd, p. 202, *Ann. Mag. Nat. Hist.*, v (ii), 1940.)

This genus, which is well represented in Africa south of the Equator, was briefly described by Macquart in 1840. Macquart, after stating that the Indian species *Bibio lar*, described by Fabricius in 1781 (p. 414, *Species Insect.*, ii), showed an ensemble of the characters of his new genus, unfortunately referred a new species *hamatus* he described from South Africa and an Oriental species

Anthrax collaris Wied., both of which belong to the genus *Exoprosopa* s. str., to his new genus. Both Loew (1860) and Ricardo (1901) who subsequently described African and South African species of *Exoprosopinae* belonging to this genus, assigned these species to *Exoprosopa*. The separate generic status of *Litorrhynchus* was only established on a proper basis by Bezzi in 1911 (1912) and 1924 when he described and revised Ethiopian species of Bombyliidae. As typical representatives of this genus do not appear to occur in the Palaearctic and North African regions, or as the significance of *Litorrhynchus* as a separate genus was not quite appreciated by authors, such as Paramonow, Engel and Hesse, who were unacquainted with the group as a whole, they either ignored the genus altogether or accorded its representatives the doubtful status of a subgenus within the large and composite genus *Exoprosopa*. The refusal to regard *Litorrhynchus* as a distinct genus in literature, before and even after Bezzi had salvaged it, was in a great measure due to Macquart's unfortunate allocation of two species of *Exoprosopa* s. str. to represent it; no typical species for the genus having been designated by either Macquart or Bezzi, though the latter had *hamatus* (a species of *Exoprosopa*) in mind. This was only done by Oldroyd in 1940 when he designated the Indian species *Bibio lar* Fab. as the genotype. A representative of this latter species was kindly forwarded to me by the British Museum. As the majority of the representatives of *Litorrhynchus* are to be found in Africa where the genus has become stabilized in its characters as a distinct and separate entity within the *Exoprosopinae*, it is rather unfortunate that an Oriental species in solitary geographical isolation and which shows certain slight aberrant characters, differing from the generic uniformity of its many Ethiopian congeners, should have been indicated as the genotypical species of *Litorrhynchus*.

The characters of this genus, as based on the isolated *Bibio lar* and the African species in the collections before me, are as follows:

Body, with a few exceptions, where it is predominantly brownish or reddish brown, mainly black above; scutellum invariably reddish or reddish brownish, rarely dark or with more black than red; hind margin of tergite 1 and sides of tergites 2 and 3 to a variable extent, but more especially in ♂♂, and sometimes sides of rest of tergites or their hind margins also reddish or reddish brownish; venter usually also yellowish brownish or reddish brownish to a variable extent, especially in ♂♂, sometimes with only the hind margins of sternites reddish and sometimes entirely dark; pleurae rarely entirely black, usually dark brownish, sienna-brownish or brown; head in front always with some yellowish, yellowish brownish or reddish brownish, more often entire front half or more of frons and entire face yellowish, sometimes sides of face or discal part of face and frons dark or more brownish or even black to a variable extent; vertex, except in reddish forms, always darker than face; occipital part either yellowish or black or black medially and yellowish on sides to a variable extent; legs always yellowish, yellowish brown or reddish brown, though they may appear black due to dark scaling; antennal joints 1 and 2 more usually yellowish or at least

yellowish below, and joint 3 more often dark or even black. *Vestiture* with the hairs on head in front not very dense, usually entirely black, rarely with pale ones on sides of face; hairs on occiput fine, short and black, those across hind margin, however, longer and paler; hairs in collar anteriorly well developed and always pale, yellowish, fulvous or reddish; those on pleurae more usually with pale and black ones, sometimes, however, entirely black, the mesopleural and metapleural tufts conspicuous and dense; black hairs and bristles invariably present along notopleural part; prealar, postalar and scutellar bristles well developed and black, rarely with yellowish ones; hypopleuron and anterior part of sternopleuron and metapleuron bare, but a metapleural tuft above spiracle present; sternopleuron and hinder part of pteropleuron with sparse, hair-like scales; plumula and tuft at base on each side of first abdominal tergite invariably white; hair on rest of abdomen above always black, rarely with some intermixed yellowish ones on sides, those on sides usually dense, much longer than fine ones discally above, those across hind margins of last two tergites also longer; hair on venter on the whole not very dense except in genotype where it is more fur-like, entirely pale or dark or pale only basally, those apically on last sternite in ♀♀ and last two sternites in ♂♂ denser, more bristly. *Scaling* on head in front denser in genotype than in African species; that narrowly behind eyes dense, silvery; that on thorax and scutellum above fine, though those along sides of thorax and in a tuft on postalar calli longer and hair-like and those across hind margin of scutellum usually broader, more lanceolate and white or whitish; scales on abdomen above broader than on thorax, comparatively dense, seldom entirely pale, usually with much dark scaling, especially across hind margins of tergites; a distinct and conspicuous, rounded or quadrate patch of broadish, snow-white or cretaceous white scales invariably present on each side of tergite 3, and last two tergites always with white scales which may be dense and conspicuous or sparse, rarely with some white scales discally on tergites 3 and 4 (in two species the white scales on tergite 3 are in form of a practically uninterrupted band across the segment); scaling on venter not very dense, usually pale or, if dark, gleaming brassy or bronzy yellowish; scaling on legs yellowish, brownish or dark. *Wings* as described and figured by the various authors (loc. cit. and also text-figs. 212 and 216) with a very uniform pattern varying only in slight specific details in the various species, consisting of two cross bands of yellowish brownish, reddish brownish or dark blackish brown which are broadly confluent anteriorly in costal part above discoidal cell, the apical part of wings and a more or less irregularly triangular indentation in the middle of hinder part being clear and hyaline, the indentation resembling in outline a clear silhouette of a bird or animal or even a human head and shoulders against a dark background; base of infuscation sometimes slightly paler or more yellowish; an oblique, pale or yellowish streak extending from just before cross vein in costal cell across bases of basal cells to base of axillary lobe of variable intensity usually present and a pellucid or white spot invariably present in second basal cell before base of discoidal cell, and just above it in

first basal cell another diffuse yellowish or whitish spot; cross veins sometimes with subpellucid spots; three submarginal cells present; middle cross vein always much before middle of discoidal cell and second vein originating at right angles opposite it; discoidal cell long; veins between the latter and posterior cells and the veins between first, second and third posterior cells sinuous; basal comb and basal hook well developed. *Head* with the face not prominently conically produced or snout-like as in *Exoprosopa*, more tumid and in genotype more convexly rounded; occipital gap slit-like, the lobes contiguous; eyes with a short bisecting line, comparatively broadly separated above on vertex in both sexes, slightly narrower in ♂♂, comparatively broader in African species than in Oriental form; frons gradually widening anteriorly, centrally slightly depressed at about middle; genal part evident on each side as a sunken slit; buccal cavity well developed, elevated; proboscis always projecting, at least as long as head, usually much or very much longer, especially in African forms; palps long, slender, not visibly jointed, with longish hairs; antennae widely separated, joint 1 longer than 2, joint 3 conical or club-like, its base usually broadened bulb-like, the joint sometimes long, always ending in a well-developed, slender, style (or terminal joint) which is usually straight and longer or much longer than the joint, but in a few species it is, however, shorter; style slightly dilated apically and itself ending in a small stylet. *Legs* with spines on middle and hind femora below and with some spinelets on front ones above and also with longish, fine hairs on hinder aspect of front and middle ones in African representatives; tibiae with spicules developed to a variable extent on front ones, very densely on hind ones where those in upper, outer row are usually more numerous and denser; front tarsi modified in both sexes, thickened, densely covered with spine-like hairs of which the apices are curved, the first joint of tarsi thicker than the others; claws with a distinct, well-developed, slightly laterally compressed, basal tooth; front claws reduced in size, the outer claw very slightly smaller than inner one; pulvilli wanting. *Ovipositor* of ♀♀ with a row of slightly curved spines on each side of which the lower ones are the longest. *Hypopygium* of ♂♂ (text-figs. 206-18) with a crest of dense hairs or sometimes almost spine-like hairs along dorsal part in apical half of each basal part; beaked apical joints slightly curved outwards and upwards, the apex of each ending in a slightly longer, upper, outer, curved, hook-like point and in a lower, inner, shorter, blunter process; each beaked apical joint also with a prominently raised, blunt, projecting process on outer side just before middle of joint; aedeagal apparatus with a prominent, ventral, scoop-like, aedeagal process, which is usually broadened apically and centrally keel-like on dorsal aspect (side view); aedeagus itself relatively short; lateral struts of middle aedeagal part strongly developed, broadly shoe-horn-shaped; posteriorly projecting strut chopper-shaped or racket-shaped as shown in figures.

The presence of three submarginal cells in wings, a characteristic wing-pattern, the presence of a basal tooth to claws, the rounded face, long stylar

element of third antennal joint, and the large size, distinguish this genus at once from *Thyridanthrax*. It can only be confused with *Exoprosopa*, from which it may at once be distinguished by the following combination of characters: the distinctly less conically or sharply produced and more rounded face; much longer proboscis, which is usually much longer than head and projecting much beyond buccal cavity; relatively shorter third antennal joint; distinct spicules on front tibiae; relatively stouter front tarsi which have longer and stouter, spine-like hairs; relatively stouter, more compressed tooth to claws; the characteristic wing-pattern; presence of a rounded or quadrate patch of white scales on sides of tergite 3 and white scaling only on two last tergites; and by the slightly different hypopygium of ♂♂.

With the exception of the genotype *Litorrhynchus lar* (F.) and possibly a few other Oriental species all the species of the genus occur in Central Africa, East and South-east Africa and Southern Africa, where they constitute a characteristic element of the Bombyliid fauna. They appear to be more abundant in the grass-steppe, savannah and broken bush type of country and are not common in the Karoo and semi-arid parts. Their characteristic wing-pattern, though very striking in open grassveld, render them almost invisible in the shadows of the broken thorn-bush. Species of *Litorrhynchus* include some of the largest Bombyliids in Africa.

The biology of these interesting Bombyliids is unknown, but one South African species, according to Péringuey, was bred from the mud nests of the Sphegid-wasp *Sceliphron spirifex*. It is thus probable that these handsome insects parasitize various species of mason-wasps.

Key to the South African species of Litorrhynchus

1. (a) Apical width of third posterior cell on hind margin of wing at least twice; usually more than twice, width of apical part of second posterior cell; the latter cell with the part separating it from discoidal cell long, slender, narrow, much curved, usually subequal to or longer than part separating the cell from first posterior cell and usually as long as or longer than base of third posterior cell. 2
- (b) Apical width of third posterior cell on hind margin less than, or much less than, twice width of apical part of second posterior cell; the latter cell with the part separating it from discoidal cell shorter and broader, usually shorter than part separating the cell from first posterior cell and usually distinctly shorter than base of third posterior cell. 9
2. (a) Infuscation in wings with the broad basal band before the clear indentation distinctly broader, only the extreme apices of anal and axillary cells being clear, and basal part of fourth posterior cell more extensively infuscated; hyaline apical part of marginal cell larger, more extensive, the truncated apical part of infuscation in this cell falling short of apex of first vein, not at the same level opposite it or extending straight down or obliquely from it; clear indentation only about as broad as or only a little broader across hind margin of wing than deep; cross veins in infuscated part usually with more distinct and constant pellucid spots or obscure fenestrae; patch of white scales on sides of tergite 3 relatively smaller, rounder, less transverse; hairs in collar, upper part of mesopleural tuft, in propleural tuft, anterior part of metapleural tuft and intermixed

on pleurae more intensely and deeper reddish fulvous, fiery reddish or reddish brownish; usually larger species, about 10–21 mm. long, with a wing-length of about 12–23 mm.
♂ ♀ maurus (Thunb.) (p. 631)

- (b) Basal band before clear indentation narrower, more of the apices of anal and axillary cells being clear and basal part of fourth posterior cell slightly less extensively infuscated; hyaline apical part of marginal cell relatively smaller, the apical part of infuscation in this cell extending to opposite end of first vein and straight down or obliquely from it; clear indentation much or very much broader across hind border than deep; cross veins in infuscated part usually without distinct or even obscure spots or fenestrae; patch of white scales on sides of tergite 3 distinctly more transverse, larger or more elongated transversely; hairs in collar and on pleurae, if pale, more yellowish or, if reddish, less intensely fiery reddish; usually smaller forms. 3
3. (a) Body darker, the reddish on sides of abdomen or across hind margins of tergites, even in ♂, less extensive, the face, pleural parts and legs darker, more brownish, sienna-brownish to chocolate-brownish; face often with a tendency to be more darkened or blackened on sides; vertex usually dark or black; proboscis usually entirely dark or only obscurely reddish brown above; infuscation in wings darker, blackish brown or black, base up to level of cross vein in costal cell not much or scarcely less dark; second posterior cell markedly elongate and narrow, its base along discoidal cell usually very much longer than part separating it from first posterior cell; third posterior cell very broad across hind border, usually distinctly much broader than long along fourth posterior cell and at least more than $2\frac{1}{2}$ times as broad as second posterior cell apically; apical part of second vein roundly recurved; clear indentation usually more S-curved, the clear area in discoidal cell longer and apices of anal and axillary cells distinctly more extensively clear, the black basal band thus much narrower on hind margin; second band also much broader, about as broad, or even broader, across hind margin than clear indentation and leaving less of apices of first and second posterior cells clear; propleural tuft and pale hairs in mesopleural tuft more yellowish or straw-coloured yellowish. *♂ ♀ macropterus* (Lw.) (p. 634)
- (b) Body paler reddish or pale reddish brownish, the reddish on abdomen distinctly more extensive in both sexes, the black sometimes restricted to a central row of triangular spots; face, pleural parts and legs paler, reddish or yellowish reddish; face entirely yellowish or reddish or less darkened on sides; vertex less blackish, more brownish; proboscis paler reddish above; infuscation in wings tending to be more yellowish brownish or reddish brown, base usually paler and contrasting with rest of infuscation; second posterior cell less markedly elongate, relatively broader, its base only subequal to or even shorter than part along first posterior cell; third posterior cell less broad across hind border, scarcely, only slightly or not at all broader than along fourth posterior cell and usually only $2\frac{1}{2}$ times or less as broad as second posterior cell apically; apical part of second vein usually more sharply or less roundly recurved; clear indentation not S-shaped, the clear part in discoidal cell more rounded or shorter and apices of anal and axillary cells comparatively less extensively clear, the dark basal band thus broader on hind margin; second band usually less broad, narrower than clear area on hind margin, leaving more of apical parts of first and second posterior cells clear and, if not, other wing-characters do not differ; propleural tuft and pale hairs in mesopleural tuft usually more fulvous or even reddish. 4
4. (a) Almost entire body reddish or reddish brownish, the black on abdomen in both sexes in form of a central row of black triangles which become smaller posteriorly, ending on tergite 5; infuscation in wings more extensively yellowish brownish, only the basal band darker, the base up to level of cross vein in costal cell distinctly paler yellowish and more contrasting; infuscation in marginal cell not extending beyond level of apex of costal cell; vein between first and second submarginal cells bent at an angle in middle and there sometimes with a tendency to have a short stump; basal comb large and broad; collar, greater part of mesopleural tuft, propleural tuft, hinder part of meta-pleural tuft and hairs on sides of face gleaming deeper reddish or orange fulvous and all the hairs on venter pale, sericeous yellowish or in part reddish golden; scaling on abdomen above and on rest of body without any black ones; white scales across hind

margin of tergite 3 interrupted only in middle, not patch- or spot-like on the sides only; slightly larger species, about $11\frac{1}{2}$ –19 mm. long, with a wing-length of about 14 – $22\frac{1}{2}$ mm.

♂ ♀ *basalis* (Ric.) (p. 636)

- (b) Entire body not reddish, the thorax above, broad discal parts of tergites above or even greater part of abdomen above and sometimes even bases of sternites dark or black; infuscation in wings on the whole darker, more brownish, sometimes more chocolate-brownish, the base not, or less, contrastingly paler; infuscation in marginal cell extending beyond level of apex of costal cell, leaving only a small part clear or even occupying entire apex or even extending slightly beyond it; vein between first and second submarginal cells only sinuous and without an indication of a stump; basal comb relatively smaller; collar, propleural tuft and intermixed pale hairs in mesopleural tuft more fulvous yellowish or yellowish, all hairs on sides of face black and those in metapleural tuft posteriorly also black or yellowish; venter always with some dark or black hairs; scaling on abdomen with dark or black ones to a variable extent and, if entirely pale, other characters conform; white scales on tergite 3 in form of an elongated patch on sides only, thus broadly separated; slightly smaller forms. 5
5. (a) Marginal cell either entirely infuscated or with only a very narrow and indistinct clear part at extreme apex, the infuscation in cell extending slightly, but distinctly, beyond its apex; apical part of second vein more sharply or subangularly recurved; outer margin of second dark band straight or straighter or only slightly irregular, without or with only a very slight step opposite base of normal second submarginal cell; inner margin of this second dark band with a shorter and less bulging extension at base of second posterior cell; second posterior cell tending to be shorter and broader, its basal part usually shorter than part along first posterior cell and, if cell is longish and narrowish and with a long base, marginal cell at least entirely infuscated. 6
- (b) Apical part of marginal cell distinctly more broadly, more extensively and more constantly clear, the infuscation not extending a little beyond apex of cell; apical part of second vein distinctly more roundly recurved; outer margin of second dark band distinctly more irregular, with a more distinct and longer step opposite base of second submarginal cell; inner margin of this second band also with a longer and more bulging extension at base of second posterior cell; second posterior cell relatively longer, narrower, its base as long as or even longer than part along first posterior cell. 8
6. (a) Second cross band in wings on the whole less broad, or much or very much narrower on hind margin than clear indentation, usually not occupying entire apical margin of third posterior cell and leaving more of apical parts of first and second posterior cells hyaline; outer margin of this band straight or straighter, without even a slight step opposite base of second submarginal cell; extreme base of cut-off third submarginal cell not or only slightly infused; clear part in discoidal cell larger, less quadrate or rounded; apical part of second vein less sharply bent up; occipital part on sides behind eyes entirely yellowish or with more yellowish; abdomen above with distinctly more or more extensive dark scaling; anterior part of mesopleural tuft and hinder part of metapleural tuft with distinctly more and denser black hairs; style of antennal joint 3 tending to be shorter or even much shorter, often less than $1\frac{1}{2}$ –2 times length of joint, the latter usually more conical and slightly longer. 7
- (b) Second band broader, on hind margin quite as broad as or even broader than or only a little narrower than clear indentation, occupying entire apical part of third posterior cell and even much of that of second posterior cell, and leaving much less of apical parts of first and second posterior cells hyaline; outer margin of this band less straight, more irregular, with a slight, but distinct, step opposite base of second submarginal cell; extreme base of third submarginal (apical) cell slightly more infuscated; clear part in discoidal cell smaller, more rounded or more quadrate; apical part of second vein distinctly more sharply bent up; occipital part behind eyes entirely black or with scarcely any yellowish; abdomen above with more extensive pale or greyish yellowish or greyish brownish scaling; anterior part of mesopleural and hinder part of metapleural tufts without any or with distinctly fewer black hairs; style of antennal joint 3

more often longer, usually more than $1\frac{1}{2}$, quite 2, or even a little more than 2, times length of joint, the latter relatively shorter, more pear-shaped or pyramidal.

♂ ♀ *vernayi* n. sp. (p. 641)

7. (a) Hairs on venter mainly or entirely pale or whitish; infuscation in wings tending to be darker, darker brownish or blackish brown, the middle band distinctly much broader, occupying much or greater part of or even entire hind margin of third posterior cell; clear indentation very much narrower on hind margin, including much less of apical parts of anal and axillary cells, its inner margin less obliquely sloping and extension of middle dark band into it at base of second posterior cell distinctly shorter, less hook-like.

♂ ♀ form of *nyasae* (Ric.) (p. 639)

- (b) Hairs on venter, even in basal half, either entirely black or at least with numerous black ones; infuscation in wings tending to be more yellowish brownish, the middle band distinctly very much narrower, occupying much less of hind margin of third posterior cell, only a little more than half its length; clear indentation distinctly very much and conspicuously broader on hind margin, including very much more or even apical fourth of anal and axillary cells, its inner margin sloping more obliquely, and extension of middle dark band into it at base of second posterior cell distinctly longer, more conspicuous and more hook-like.

♂ ♀ *nyasae* (Ric.) (p. 637)

8. (a) Occipital part behind eyes entirely or mainly black; hairs on venter mainly pale or white, or at least so in basal half; hair in anterior upper part of mesopleural and in hinder part of metapleural tufts with more numerous and denser black ones; style of antennal joint 3 relatively shorter, usually less than $1\frac{1}{2}$ times length of joint; middle dark band in wings relatively narrower, leaving more of apical parts of first and second posterior cells hyaline, its projection into clear indentation at base of second posterior cell more extensive; clear indentation much broader along hind margin, and part in discoidal cell not rounded; black on abdomen above, even in ♂, more extensive.

♂ ♀ *ectophaeus* n. sp. (p. 639)

- (b) Occipital part behind eyes entirely yellowish or with much yellowish; hairs on venter black; hair in anterior upper part of mesopleural tuft with very much fewer black ones and metapleural tuft entirely yellowish or with only a few dark ones posteriorly; style of antennal joint 3 longer, quite $1\frac{1}{2}$ – $1\frac{3}{4}$ times length of joint; middle dark band in wings relatively broader, occupying more of apical parts of first and second posterior cells, its projection into clear middle part much smaller and shorter; clear indentation distinctly much narrower along hind margin, and part in discoidal cell smaller, more rounded; black on abdomen above less extensive, in form of much smaller discal triangles.

♂ *kaokoensis* n. sp. (p. 640)

9. (a) Body above and below mainly reddish or reddish brown, the black restricted to a central row of black triangles or discal patches on abdomen above, or in some ♀♀ also as narrowish transverse basal bands on tergites and sternites; face entirely yellowish or yellowish red; infuscation in wings more yellowish brownish, the base contrastingly paler yellowish; infuscation in marginal cell extending to much beyond end of first vein, leaving only a small area clear at apex of cell; that in first posterior cell projecting characteristically tooth-like down first posterior cell, leaving only its apex clear; veins yellowish or reddish; hairs on sides of face, in collar, upper part of mesopleural tuft, pleurae, metapleural tuft, the stoutish prealar and postalar bristles fulvous yellowish to deep fulvous reddish; hairs on sides of abdomen very short and with numerous reddish ones; those on venter entirely pale, sericeous whitish, yellowish or slightly reddish; body without any black scales; white scales across hind margin of tergite 3 tending to form a continuous or uninterrupted band; front tarsi, especially in ♀, relatively thicker, stouter, the outer claw more distinctly shorter than inner one.

♂ ♀ *dentiferus* Bezz. (p. 642)

- (b) Body above at least mainly dark or black, the reddish on abdomen, if present, restricted to sides of tergites 2–3 (or 4) and hind margins of tergites, more especially in ♂♂; face with a tendency to be dark on sides, sometimes entirely dark or brownish; infuscation in wings darker, blackish brown or black, the base not much paler; main infuscation in marginal cell falling short of apex of first vein and, if extending to apex of this vein, a larger clear area is present apically or infusion is present only as a narrow streak

just below first vein; infuscation in first posterior cell not extending tooth-like down the cell; veins darker; hairs on face entirely dark and hair on above-mentioned parts not all fulvous reddish, the bristles on thorax being all black; hairs on sides of abdomen much denser, longer, mostly black; venter entirely dark-haired or at least with some dark ones; abdomen above with much dark scaling; white ones on tergite 3 in form of a transverse patch on each side; front tarsi not thicker than usual, the outer claw not so markedly shorter than inner one. 10

10. (a) Infuscation in marginal cell extending right up to end of first vein and from there straight across to second vein at same level some distance beyond base of submarginal cross vein; second dark band in wings relatively much narrower and very narrow on hind margin just a little beyond middle of hind margin of third posterior cell, the greater part of hind margin of this cell and entire hind margin of second posterior cell being clear; outer margin of this second dark band truncately produced for a little distance down first posterior cell, and in first submarginal cell it is straight; first posterior cell rather less narrowed apically, relatively more broadly open; style of antennal joint 3 very long, slender, about $1\frac{1}{2}$ –2 times as long as joint; slightly smaller form, about 9–10½ mm. long, with a wing-length of about 11–12 mm.

♂ ♀ *bechuanus* (Hesse) (p. 643)

- (b) Infuscation in marginal cell falling short of end of first vein, not extending, or only so for a much shorter distance, beyond base of submarginal cross vein, but sometimes narrowly prolonged streak-like just below apical part of first vein (apex of costal cell); second band much broader and, even if narrowed on hind margin, occupying at least half or some considerable part of apical margin of third posterior cell; outer margin of this second band, if extending down first posterior cell, then more so along or next to vein separating it from first submarginal cell, and margin in apical part of latter cell indented, not straight; first posterior cell more distinctly narrowed apically, relatively less broadly open; style of antennal joint 3 relatively shorter, usually less or much less than $1\frac{1}{2}$ –2 times length of joint; larger forms, usually more than 10 mm. long, with a wing-length of more than 11 or 12 mm. 11
11. (a) Collar anteriorly, hairs in upper part of mesopleural tuft and in propleural tuft strikingly deep fulvous or fiery reddish; second dark band in wings very broad, occupying most of hind margin of third posterior cell and at least half or even more of that of second posterior cell or at least considerably broader than hind margin of clear indentation; infuscation in marginal cell extending slightly or at least distinctly beyond base of submarginal cross vein; hind margin of third posterior cell relatively broader, only a little narrower than twice width of that of second posterior cell; middle cross vein and to a fainter extent basal cross veins of third and fourth posterior cells with more distinct fenestrate spots. ♂ ♀ form of *maurus* (Thunb.) (p. 633)
- (b) Collar anteriorly, hairs in upper part of mesopleural tuft and in propleural tuft only yellowish or straw-coloured, not deep or fiery reddish; second band in wings relatively narrower, either not occupying entire or greater part of hind margin of third posterior cell plus half of that of second posterior cell or, if very extensive on hind margin, band is at least narrower than clear indentation or hairs in collar not deep red; infuscation in marginal cell not or scarcely extending, even a little, beyond base of submarginal cross vein; hind margin of third posterior cell distinctly much narrower than twice width of that of second posterior cell; cross veins, especially middle cross vein, without distinct fenestrate spots, at most with only very much fainter opaquely yellowish ones. 12
12. (a) Clear indentation in wings with the extension into discoidal cell appearing as if pinched off, due to a narrowish neck or part formed by a blunt or very angular tooth-like extension of basal band projecting into base of third posterior cell and along basal part of vein between third and fourth posterior cells and another more constant and prominent one opposite it also in third posterior cell from second dark band; this clear part in discoidal cell smaller, tending to be more rounded; infuscation in marginal cell ceasing truncately some distance before end of first vein, but continued as a faint streak-like infusion to end of this vein just below its apical part; apical margin of infuscation with a greater tendency to be irregular and to show more constant tooth-

like extensions and indentations, especially apically along vein between first submarginal and first posterior cells and at base of cut-off third submarginal (apical) cell; face tending to be darker, even more brownish, the dark on its sides sometimes extensive.

- 13
- (b) Clear indentation more triangular, the part in discoidal cell not appearing as if pinched off by a narrow neck, the outer margin of basal dark infuscation straight, without any tooth-like extension at base of third posterior cell (which is entirely clear) and with the other tooth-like extension below base of second posterior cell less developed, blunter; clear part in discoidal cell distinctly larger; infuscation in marginal cell also ending truncately, but without any distinct streak-like extension below end of first vein; apical margin of infuscation tending to be less irregular, the extensions and indentations much feebler; face tending to be paler. 17
13. (a) Third antennal joint elongate, conical, distinctly much longer than its style, at least $1\frac{1}{3}$ or $1\frac{1}{4}$ times as long; outer or apical margin of broad basal band of infuscation with a more prominent or longer, tooth-like projection at base of third posterior cell, the roundish, clear area in discoidal cell smaller, appearing more pinched off and the clear apical parts of anal cell and axillary lobe distinctly more extensive; second band narrower on hind margin, only occupying about half or a very little more of the apical margin of third posterior cell, sometimes with a tendency to fade out or not to reach the hind margin at all; clear indentation thus distinctly much broader than deep; more pale hairs in propleural tuft and upper part of mesopleural tuft and also with more pale hairs in anterior part of metapleural tuft. 17 ♂ ♀ *dilatatus* Bezz. (p. 646)
- (b) Third antennal joint distinctly shorter, scarcely longer than, subequal to, or even distinctly shorter than its style; outer margin of basal band straight or substraight or with a feebler projection in base of third posterior cell, the clear part in discoidal cell on the whole thus slightly larger, sometimes appearing less pinched off on inner side (if small and pinched off antennal joint 3 at least short) and only extreme apices of anal and axillary cells clear; second band distinctly broader on hind margin, usually occupying more than half or even entire hind margin of third posterior cell and always reaching this margin; clear indentation thus much narrower, distinctly narrower than deep; much fewer pale hairs in propleural and mesopleural tufts, sometimes these tufts entirely black and metapleural tuft is entirely dark. 14
14. (a) Vein between first and second posterior cells very much longer than vein between the former and discoidal cell; outer or apical margin of infuscated part in wings distinctly more irregularly zigzag, the tooth-like or angular extension in first posterior cell and along vein separating it from first submarginal cell distinctly more prominent and the indentations above and below it deeper; head in front slightly paler, more yellowish, dark only on sides. 15
- (b) Vein between first and second posterior cells tending to be much shorter, subequal to, scarcely longer than, or even slightly shorter than vein between the former and discoidal cell; outer margin of infuscation less irregularly zigzag, the extension in first posterior cell feebler, blunter, more rounded and indentations above and below it shallower; head in front and face dark or darker brownish. 16
15. (a) Clear area in discoidal cell relatively smaller, more rounded, appearing more pinched off, its width across hind margin relatively broader; infuscation in marginal cell apically with a more constant, more distinct, longer and broader streak below apical part of first vein; proboscis relatively shorter, much shorter than front tibia and tarsus together. 15 ♂ ♀ *damarensis* n. sp. (p. 647)
- (b) Clear area in discoidal cell broader, more quadrangular, appearing less pinched off, the neck being broader, its width across hind margin relatively narrower; infuscation in marginal cell without any or a very much feebler, fainter and shorter streak below apex of first vein; proboscis distinctly longer, subequal to or longer than combined length of front tibia and tarsus. 16 ♂ ♀ *rostratus* (Lw.) (p. 645)
16. (a) Infuscation in marginal cell with a constant, distinct, broadish streak just below apical part of first vein beyond truncated apical margin of infuscation in the cell; pale spot in second basal cell and especially the one in first basal cell just above it distinctly larger;

second band in wings narrower on hind margin, leaving apical part or margin of second posterior cell clear; apices of anal cell and axillary lobe more broadly clear, the clear indentation thus broader across hind margin; propleural and upper anterior part of mesopleural tufts usually with some or even numerous pale hairs.

♂ ♀ *obumbratus* Bezz. (p. 648)

- (b) Infuscation in marginal cell without any or only with a very faint, obscure and shorter streak apically below first vein; pale spot in second basal cell and especially the one in cell above it much smaller; second band very much broader on hind margin, also occupying at least half of apical margin of second posterior cell; anal cell and axillary lobe entirely infuscated or only the extreme apex of anal cell clear, the clear indentation thus distinctly narrower on hind margin; pleural parts entirely black-haired or with only a few pale hairs.

♂ ♀ *atricapillus* n. sp. (p. 650)

17. (a) Hairs in collar, upper anterior part of mesopleural tuft, propleural tuft, to a certain extent on pteropleuron and on anterior part of metapleural tuft either fulvous reddish, fulvous brownish or with a deeper fulvous reddish tint; third antennal joint much shorter, its style subequal in length or distinctly longer than the joint; sides of abdomen more extensively reddish and base of scutellum only very narrowly black; clear indentation in wings with its outer margin in discoidal cell obliquely straight or substraight; stoutish bristly hairs on front tarsi normal, not markedly developed.

♂ ♀ *pseudocollaris* Bezz. (p. 651)

- (b) Pale hairs on all these sites more yellowish, not deeply fulvous reddish and also with more black hairs on pleurae; third antennal joint markedly elongate, much longer than joint 1 and considerably longer than its style, sometimes quite twice as long; sides of abdomen less extensively reddish and base of scutellum more broadly black; clear indentation with its outer margin in discoidal cell more curved or rounded; bristly hairs on front tarsi with the longer ones more developed, longer and stouter.

♂ ♀ *erythraeus* subsp. *allothyris* Bezz. (p. 652)

Litorrhynchus maurus (Thunb.)

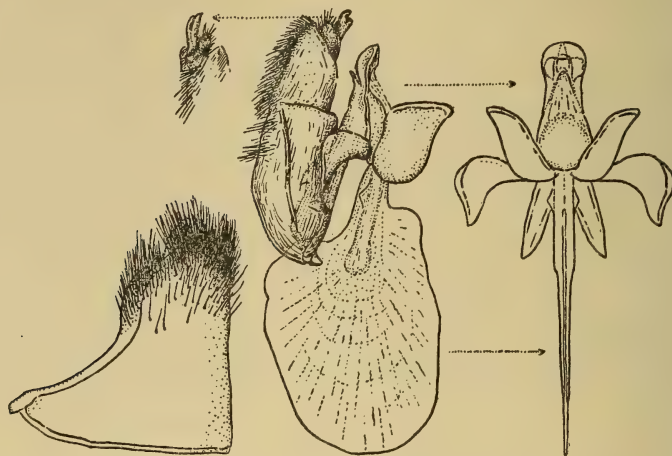
(Thunberg, p. 73 and tab. i, fig. 11, *Nova Acta Upsal.*, ix, 1827 (as *Tanyglossa*); Bezzi, p. 137 and pl. ii, fig. 25, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 218, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Syn. = *collaris* Macquart, nec Wiedemann, according to Bezzi, loc. cit.)

The identity of this species is very doubtful. According to Bezzi this is the species which Thunberg described in 1827 as *Tanyglossa maura*. As I have not seen the original description or the figure of Thunberg, I am not in a position to verify Bezzi's contention. Neither is it possible to corroborate his statement that the *collaris* of Macquart is identical with the *maura* of Thunberg. This confusion is rendered still greater by the fact that Bezzi (loc. cit., 1924) also erroneously referred Loew's *rostratus* (p. 230 and tab. ii, fig. 28, *Dipt. Faun. Südafr.*, i, 1860), which according to Loew's description and figure of the wing is an entirely different species, as a synonym of this species now before me. The conclusion which suggests itself is that Bezzi was not at all sure of the identity of either *rostratus* or of *maurus* s. str. or even of the *collaris* of Macquart and that the species now before me which he labelled as *maurus* and which is referred to

as such in literature may not be the same as the one described by Thunberg. It may even prove to be the species *tollini* described by Loew (p. 15, *Wien. Ent. Monatschr.*, vii) in 1863, the identity of which, owing to the very brief and unsatisfactory description, is also very doubtful.

In this revision it is, however, provisionally also placed under the name of *maurus* by which it has become known in literature and in the various collections. The species is chiefly characterized as follows:



TEXT-FIG. 206. Side view of last sternite (left) of ♂ *Litorrhynchus maurus* (Thb.), side view of hypopygium and dorsal view of beaked apical joint (middle), and ventral view of the aedeagal apparatus (right) of ♂ of same species.

Body with the red on sides of tergites 2 and 3 often very extensive in ♂; venter in ♂ often mainly reddish or reddish brown, with a broadish, central, black band, in ♀ predominantly black, only sides basally and to a certain extent the hind margins of sternites reddish; pleurae brownish or sienna-brownish; face without black on sides; antennal joints 1 and 2 usually also yellowish or reddish brownish; proboscis black, but reddish above; legs reddish brownish, the extreme apices of femora and bases of tibiae and apical parts of tarsi dark or blackish. *Vestiture* with the hairs in collar, upper anterior part of mesopleural tuft, in propleural tuft, in tuft on pteropleuron and in anterior part of meta-pleural tuft deep fulvous reddish, fiery reddish or deep orange reddish; rest of hair and hair-like scales on pleurae, except black bristly elements, more velvety brownish or brownish red; hairs behind collar, on sides of thorax above, bristles on thorax and scutellum, dense hairs on sides of abdomen, hairs on venter, and spines and spicules on legs black; fine scaling on thorax above mostly dark, but gleaming velvety brownish to purplish brownish in certain lights; that on abdomen above mostly black, gleaming greyish or graphite-like;

patch of white scales on sides of tergite 3 roundish; whitish scaling on last two tergites appearing greyish in certain lights; scaling on venter more elongated, mostly dark, gleaming brownish, with some sparse, pale or yellowish ones in a streak on each side; scaling on legs mainly dark, gleaming more brownish, reddish brownish or even yellowish in certain lights. *Wings* with the infuscation chocolate-brownish to dark blackish brown, the oval spot-like part between oblique yellowish basal vein of basal cells and yellowish whitish spots in second basal cell and middle of first basal cell more velvety black; base sometimes very slightly paler, more yellowish; second dark band markedly broad, occupying most of hind margin of third posterior cell and usually at least half (or even more) of that of second posterior cell as well, its outer margin with a slight extension down first posterior cell and shallowly indented in first submarginal cell; infuscation in marginal cell not extending much beyond base of submarginal cross vein; inner margin of middle clear indentation straight or sub-straight, cutting off only the extreme apices of anal and axillary cells; middle cross vein, basal cross vein of fourth posterior cell and sometimes base of third posterior cell usually with pellucid or yellowish spots or fenestrae and sometimes also with an indication of a pale spot in first posterior cell. *Head* with antennal joint 3 conical, its style slightly or distinctly longer than joint itself; proboscis about 3.3–7.24 mm. long. *Hypopygium* of ♂ as shown in text-fig. 206, right.

In the South African, British, Transvaal, Rhodesian, Durban, Natal and Albany Museums, in the Commonwealth Institute and Agricultural Department of Southern Rhodesia.

Length of body: about 10–21 mm.

Length of wing: about 12–23 mm.

Locality: East Cape, Eastern Karoo, Basutoland, Orange Free State, Natal, Zululand, Transvaal, Bechuanaland and Southern Rhodesia.

As in the case of some other species of *Litorrhynchus* this species is apparently also slightly variable in size, in the extent of the infuscation in the wings and in venational characters. A ♂-specimen from the Eastern Province (Fort Beaufort) in the South African Museum constitutes a slightly aberrant form, differing from the more common form in being relatively smaller; in having the entire anal and axillary cells infuscated, not even their extreme apices being clear; in having the main infuscation in marginal cell extending to a little beyond base of submarginal cross vein and then also more distinctly continued as a streak just below apex of costal cell (first vein); the second broad band even relatively broader on hind margin, leaving less of apical part of second posterior cell clear; third posterior cell distinctly narrower on hind margin, being distinctly less than twice width of second posterior cell; and in having a tendency for face to be slightly darkened spot-like on sides.

On account of the aberrant relationship of its second and third posterior cells it has also been placed in the second section of the key dealing with *dilatatus*, *rostratus*, *obumbratus*, etc.

Litorrhynchus macropterus (Lw.)

(Loew, p. 230 and tab. ii, fig. 29, *Dipt. Faun. Südaf.*, i, 1860 (as *Exoprosopa*.)

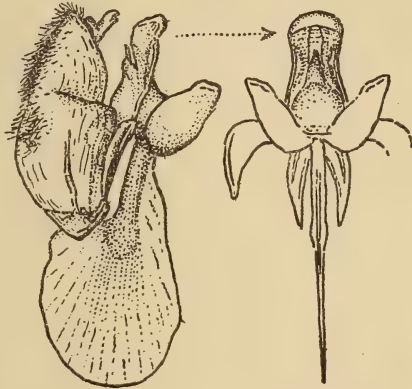
(Syn. = *longipennis* (Loew), p. 14, *Wien. Ent. Monatschr.*, vii, 1863 (as *Exoprosopa*); Röder, p. 98, *Wien. Ent. Zeit.*, vii, 1888.)

(Syn. = *tollini* Bezzi, nec Loew, p. 138, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 222, *The Bombyliidae of the Ethiopian Region*, 1924.)

The long series of ♂♂ and ♀♀ in the collections before me agree in most respects with Loew's good description of this species and the wing-pattern is identical with that given by Loew. Moreover one ♀-specimen from Hex River was labelled as *macroptera* by Bigot who identified and compared a few Bombyliidae for the late Dr. Péringuey many years ago. Bezzi on the other hand in his revision of the South African Bombyliidae wrongly identified this species as *tollini* (Lw.) and judging from his redescription of the so-called *tollini* (loc. cit., 1924) and his reference in this same description to an earlier error on his part in the identification of this species (p. 634, *Trans. Ent. Soc. Lond.*, 1911 (1912)) it is quite evident that as in the case of *rostratus* (Lw.) (see under latter) Bezzi was equally uncertain about the identity of *macropterus*. Similarly Ricardo in 1901 (p. 96, *Ann. Mag. Nat. Hist.*, vii (7)) wrongly identified another species, which was subsequently described by Bezzi as *obumbratus*, as *macropterus*. The actual two specimens (♂ and ♀), which Ricardo referred to *macropterus* and which Distant collected in Pretoria, were present in the Bombyliid material which the British Museum submitted to me. The species is characterized as follows:

Body, apart from the usual reddish or reddish brown humeri, postalar calli, scutellum and extensive reddish on sides of abdomen and across hind margins of tergites, mostly black above, sienna-brownish to dark brownish below, though sternites in ♀ usually more broadly black across bases and venter in ♂ sometimes predominantly yellowish; head in front with basal half of frons tending to be more brownish than yellowish, sometimes entire frons and face discally more brownish or darkened or sides of face even blackened to a variable extent; legs yellowish brownish to brown, usually appearing darker or black, due to dark scaling. *Vestiture* with the pale hairs in collar, propleural tuft, intermixed ones in mesopleural tuft and in anterior part of metapleural tuft straw-coloured yellowish to slightly fulvous yellowish; pale hair-like scales on rest of pleurae and on coxae sometimes gleaming more fulvous brownish or reddish; hairs on venter predominantly or entirely black like those on sides of abdomen; patch of white scales on sides of tergite 3 in form of a transverse quadrangular spot. *Wings* rather narrowish, elongate, with a characteristic pattern in which the clear indentation tends to be roughly S-shaped, occupying a great part of the discoidal cell where it is longer, more quadrangular than in any other South African species, its width on hind margin of wing also relatively broad, considerably broader than indentation is deep,

the apices of anal cell and axillary lobe being usually extensively clear; infuscation beyond clear indentation broad on hind margin, usually quite as broad as clear indentation, relatively broader than in most species; basal, pale or yellowish streak across bases of basal cells very distinct; whitish spots in basal cells conspicuous, sometimes also with a pale spot in first posterior cell; second posterior cell markedly elongate and narrow, its base very much longer than part separating it from first posterior cell; apical margin of third posterior cell very broad, distinctly much broader than along fourth posterior cell and usually more than twice or even three times width of second posterior cell on hind margin; second vein roundly recurved at end, the apical part clear; squamae yellowish to brownish, usually with a brownish fringe which may, however, be much paler. *Head* with the style of antennal joint 3 slender, long, much longer than joint, sometimes quite twice length of joint; proboscis long relative to size of specimens, about 3.5–7.5 mm. *Hypopygium* of ♂ as shown in text-fig. 207.



TEXT-FIG. 207. Side view of hypopygium and ventral view of the aedeagal apparatus of ♂ *Litorrhynchus macropterus* (Lw.).

In the Transvaal, British, Albany and South African Museums and the Commonwealth Institute.

Length of body: about 8–17 mm.

Length of wing: about 10–20½ mm.

Locality: Western and Eastern Cape, Karoo and Namaqualand.

This is the common *Litorrhynchus* species of the Cape and is easily recognized by its characteristic wing-pattern, long stylar element, long proboscis, etc. It can only be confused with *rostratus* and certain forms of *vernayi* n. sp. From the former it may at once be distinguished by the relatively longer and narrower wings, much longer second posterior cell, broader clear indentation, longer clear part in discoidal cell, smaller clear apical part in marginal cell, etc. From forms of *nyasae* and from *vernayi* it differs in not having the apical part of marginal cell infuscated to the same extent, longer clear part in discoidal cell, relatively broader second posterior cell and longer proboscis. It cannot be the same as *tollini* (Lw.) as Bezzi maintains, for according to Loew's short description of the latter (p. 15, *Wien. Ent. Monatschr.*, vii, 1863) *tollini* has reddish hairs in collar and on pleurae. Moreover it is most unlikely that Loew who was a careful systematist would have confused two of his own species. The species *tollini* cannot be identified from the short description alone, but as only two black South African species, *maurus* (Thunb.) and *pseudocollaris* Bezz., are characterized by gleaming fulvous or fiery reddish hairs in collar and on pleural parts there is

a possibility that either Loew may have redescribed the species referred to *maurus* in collections as *tollini* or that Bezzi described Loew's *tollini* as *pseudocollaris*. Only an examination of the type of *tollini* would clear up this point. The species *longipennis* which Loew mentioned in 1863 (loc. cit.) is according to Röder a synonym of *macropterus*. It is also doubtful whether this species (*macropterus*) wrongly referred to as *tollini* by Bezzi is the species which Péringuey bred from mud nests of the Sphegid-wasp *Sceliphron spirifex*, for a specimen in the South African Museum supposed to have been bred from such a nest belongs to *dilatatus* Bezz. and not to *macropterus*.

Litorrhynchus basalis (Ric.)

(Ricardo, p. 97, *Ann. Mag. Nat. Hist.*, vii (7), 1901; Bezzi, p. 630 and pl. L, fig. 8, *Trans. Ent. Soc. Lond.*, 1911 (1912); Bezzi, p. 218, *The Bombyliidae of the Ethiopian Region*, 1924.)

This very striking species which Ricardo described very briefly in 1901, comparing it with a species which Bezzi subsequently described as *obumbratus*, but which Ricardo at the time confused with Loew's *macropterus*, shows a number of characters which readily distinguish it from most other South African species. It cannot be compared with either *macropterus* or *obumbratus*. The species is characterized as follows:

Body and legs predominantly reddish brown; three longitudinal lines on thorax above, ending near base and beyond middle in a transverse discal spot, and a central row of triangular spots on abdomen above, black, the latter with their broad bases across bases of tergites, the spots decreasing in size and ceasing on tergite 5; bases of sternites sometimes darkened, especially along middle line. *Vestiture* with the hairs on sides of face, in collar, upper anterior part of mesopleural tuft, propleural tuft, metapleural tuft and hairs among the black intermixed ones on rest of pleurae as well as the hair-like scaling on pleurae and coxae fiery reddish, deep fulvous reddish or orange reddish; hairs on venter gleaming sericeous yellowish, in part reddish golden; bristles on thorax and scutellum, hairs on head in front, dense hairs on sides of abdomen, fine ones discally as well as fine hairs, spines and spicules on legs black; scaling on head in front golden; that on thorax and scutellum and abdomen above gleaming greyish silvery to golden in different lights, black or dark scaling being entirely absent; scaling on legs also greyish golden or yellowish; that on venter yellowish to yellowish white; white scales on tergite 3 in form of a scarcely, or only very slightly, interrupted transverse band across hind margin denser on sides and in the middle intramarginal; tergite 2 also with a small patch of white scales on sides and the triangular whitish scales on last two tergites sometimes very dense in some ♂♂. *Wings* with the infuscation yellowish or reddish brownish, the base contrastingly more yellowish; broadish oblique yellowish streak across bases of basal cells strikingly conspicuous; broad basal band beyond latter darker, more dark reddish brown; apical part of marginal cell clear, the infuscation only extending to end of first vein; clear indentation

shaped much like that of *maurus*, its inner margin also straight, with, however, more of the apices of anal and axillary cells clear; veins reddish or reddish brown; hind margin of third posterior cell very broad, much more than twice apical width of second posterior cell; the latter long, curved; vein between first and second submarginal cells usually bent at an angle in middle and there with a tendency to have a stump; basal comb large, broad, yellowish-scaled; halteres brownish, their knobs pallid above. Head with antennal joint 3 conical, its style only a little longer than the joint; proboscis black, reddish above, rather long, about 4.5–7.2 mm. long. Hypopygium of ♂ as shown in text-fig. 208.

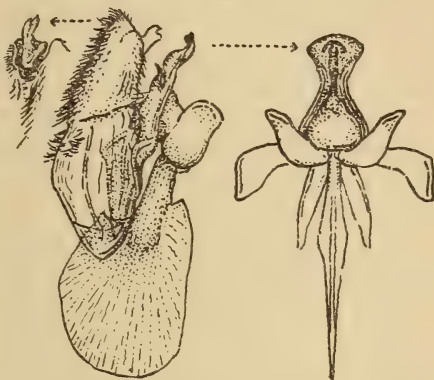
In the South African and Transvaal Museums.

Length of body: about 11½–19 mm.

Length of wing: about 14–22½ mm.

Locality: Zululand, Eastern and North-eastern Transvaal, Southern Rhodesia and, according to Bezzi, also Nyasaland and the Belgian Congo.

Easily recognized by its reddish brown body, orange fulvous hairs on sides of face, in collar and pleural parts, entire absence of black scaling and the almost uninterrupted band of white scaling on tergite 3. It can only be confused with *dentiferus* and *ricardoi* which have similar characters. From the former it differs in not having the entire or greater part of marginal cell infuscated, in not having the infuscation projecting tooth-like down the first posterior cell and in having the hind margin of third posterior cell more than twice as broad as that of second posterior cell. From *ricardoi*, which Bezzi described from Nyasaland (p. 631 and pl. L, fig. 10, *Trans. Ent. Soc. Lond.*, 1911 (1912)), it apparently differs in having a larger clear area apically in the marginal cell, some golden hairs, and not whitish ones, on sides of face and a practically uninterrupted white band across tergite 3.



TEXT-FIG. 208. Side view of hypopygium, dorsal view of right beaked apical joint and ventral view of aedeagal apparatus of ♂ *Litorrhynchus basalis* (Ric.).

Litorrhynchus nyasae (Ric.)

(Ricardo, p. 96, *Ann. Mag. Nat. Hist.*, vii (7), 1901; Bezzi, p. 630, *Trans. Ent. Soc. Lond.*, 1911 (1912); Bezzi, p. 223, *The Bombyliidae of the Ethiopian Region*, 1924; Hesse, p. 175, *Ann. Transv. Mus.*, xvii, 1936.)

(Syn. = *argyrolepis* Bezzi, in part, p. 138, *Ann. S. Afr. Mus.*, xviii, 1921, nec *argyrolepis* Bezzi s. str., 1911.)

Owing to the variation in the width of the second or middle cross-band and the extent of the clear indentation in the wings, and in the colour of the hairs

on the venter, the true identity of this species is not quite certain and some confusion probably exists in literature. There is no doubt that the specimens in the South African Museum which Bezzi referred to his *argyrolepis* in 1921 (loc. cit.) are in fact typical representatives of Ricardo's *nyasae* s. str. The presence of black hairs on the venter and the narrow middle dark band in the wings, specially mentioned by Ricardo, confirm this. It is however not quite certain whether Bezzi's original *argyrolepis*, described from Nyasaland in 1911 (p. 631, loc. cit.) and again referred to in his revision (1924) is identical with Ricardo's species. On the other hand the wing figured in plate L, fig. 9 in the same publication (loc. cit., 1911) as that of *nyasae* appears to represent that of a form or race of the latter and not of the typical form. The fairly long series of both typical and atypical representatives of this species in Southern Africa are characterized as follows:

Body dark brownish to black above on vertex, thorax and on discal part of abdomen above; latter with the reddish on sides and across hind margins of tergites variable in extent, but usually very extensive in ♂, the black often evident only as a row of discal triangles; pleurae usually more dark brownish to reddish brown; occiput behind eyes on sides reddish or yellowish red like frons and face; venter mostly yellowish reddish, but sometimes with the bases of sternites, especially in ♀, darkened medially; legs yellowish reddish, reddish to reddish brown, the apical part or half of tarsi black. *Vestiture* with the hairs on head entirely dark; collar anteriorly, intermixed bristly hairs in upper part of mesopleural tuft, lower part of tuft, propleural tuft and usually those in anterior part of metapleural tuft yellowish, fulvous to golden yellowish; hairs on venter either entirely pale, gleaming sericeous whitish or yellowish or sometimes pale only basally in one form, or mainly black in the typical form; bristles and hairs on body above, densely in upper part of mesopleural tuft, in hind part of metapleural tuft, on lower part of propleural tuft, on coxae, and densely on sides of abdomen black; hair-like scaling on pleurae and coxae mainly golden or reddish golden; fine scaling on thorax and scutellum above yellowish, golden to reddish golden, the larger ones across hind border of latter and on postalar calli whitish; scaling on abdomen above with much or extensive dark or black ones in addition to the greyish yellowish or dull yellowish ones; white ones on sides of tergite 3 in form of an elongated quadrangular patch; scales on venter whitish or greyish; those on legs gleaming greyish to yellowish golden, but sometimes darker or brownish on upper surfaces of femora. *Wings* with the infuscation yellowish brown, brown, dark brown to blackish brown, always extending to end or to almost end of marginal cell and even slightly beyond it into extreme inner apical angle of cut-off third submarginal (or apical) cell; extreme base of this latter cut-off third submarginal cell sometimes also slightly infused; outer margin of basal band straight or substraight and apical parts of anal and axillary cells clear to a variable extent, much more so in typical form; second band either broad on hind margin (in one form), occupying almost entire hind margin of third posterior cell and sometimes also a small

part of hind margin of second posterior cell, or the band (in typical form) is considerably narrowed on margin, occupying only apical half or slightly more of hind margin of third posterior cell and leaving entire hind margin of second posterior cell hyaline; clear indentation usually broad on hind margin, much broader than deep, much more so in typical form; projection of second dark band into it at base of second posterior cell more conspicuous and hook-like in typical form; clear spots and oblique yellowish streak across bases of basal cells conspicuous, sometimes also with a clearer spot in first posterior cell; apical margin of third posterior cell at least twice as broad as hind margin of second posterior cell; squamae yellowish brownish, with a whitish, yellowish white, yellowish to pale yellowish brownish fringe; halteres brownish. *Antennae* with the style of joint 3 longer than the joint. *Hypopygium* of ♂ with the aedeagal apparatus and process as shown in text-fig. 209 on left.

In the South African, British, Rhodesian and Transvaal Museums and in the Commonwealth Institute and Agricultural Department of Southern Rhodesia.

Length of body: about 7-15 mm.

Length of wing: about 8-18 mm.

Locality: Transvaal, Southern Rhodesia, Bechuanaland, Portuguese East Africa, East Africa and Nyasaland.

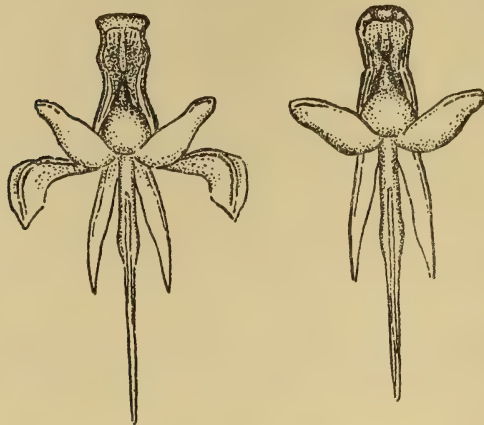
Easily recognized by the wing-pattern in which the infuscation in marginal cell extends farther apicalwards than in other South African species except *dentiferus* in which there is however also a projection down the first posterior cell and in which the entire body is reddish and the white scaling across tergite 3 is band-like. It occurs in Southern Africa in two more or less distinct forms, the typical form and a varietal form. The latter differs from the former in having the hairs on venter mainly or entirely pale or whitish; the second or middle dark band in wings distinctly much broader, occupying the greater part or even entire hind margin of third posterior cell; and in having the clear indentation very much narrower on hind margin, including much less of apical parts of anal and axillary cells and with the extension of second dark band into it at base of second posterior cell much shorter and less hook-like.

Litorrhynchus ectophaeus n. sp.

(Syn. = *nyasae* var. Hesse, nec Ricardo, p. 175, *Ann. Transv. Mus.*, xvii, 1936 (as *Exoprosopa*).)

This species which I referred to *nyasae* in 1936 however shows certain constant differences which exclude it from the latter even as a variety. It differs from *nyasae* and its atypical form in having the apical part of marginal cell constantly and more broadly clear; apical part of second vein more roundly recurved; second dark band in wings on the whole broader, sometimes occupying entire apical part of third posterior cell and with its outer (apical) margin distinctly more irregular, with a distinct step opposite base of second submarginal

cell; second posterior cell relatively longer, narrower, its basal part as long as, or even a little longer than, part along first posterior cell; spot in first



TEXT-FIG. 209. Left: Ventral view of aedeagal apparatus of hypopygium of ♂ *Litorrhynchus nyasae* Ric. Right: Ventral aedeagal apparatus of ♂ *Litorrhynchus ectophaeus* n. sp.

posterior cell tending to be clearer, more distinct; occipital part on sides behind eyes entirely black or with more black; antennal joint 3 tending to be relatively longer relative to its style, sometimes scarcely much shorter than its style; and in having the aedeagal process of hypopygium in ♂ (text-fig. 209, right) slightly differently shaped, not sinuate on sides apically and also more rounded and not truncate apically.

The wing-pattern very closely resembles that described and figured for *ricardoi* by Bezzi (cf. p. 631 and pl. L, fig. 10, *Trans.*

Ent. Soc. Lond., 1911 (1912)), but according to the description this latter species from Nyasaland has entirely whitish hairs on face, a red thorax with three longitudinal black stripes, and a predominantly reddish abdomen on which the black is only represented by a narrow, central stripe extending to fourth tergite.

From 12 ♂♂ and 11 ♀♀ (holotype in the South African Museum, allotype in the Transvaal Museum and paratypes in both these institutions and also in the Durban and Rhodesian Museums and in the Commonwealth Institute).

Length of body: about 9–16 mm.

Length of wing: about $11\frac{1}{2}$ –18 mm.

Locality: Southern Rhodesia: Bulawayo (Stevenson, 29 March 1927) (types); Southern Rhodesia (Stevenson, Sept.–Dec. 1925); Bulawayo (Stevenson, 23 March 1925, 23 March 1923, 24 Sept. 1923); Bulawayo (Tucker, May 1917); Matopos (Rhod. Mus., 2 May 1920); Matopos (Mackie and Ogilvie, April 1932); Matopos (Bevis, 18 April 1949); Jessa (Mackie, April 1932); Shangani (Ogilvie, May 1932); Saw Mills (Stevenson, 1924). Bechuanaland: Gemsbok Pan (V.-L. Kal. Exp., 23 April to 5 May 1930). South-West Africa: Gobabis Dist. (Meyer, 22 April 1950).

Litorrhynchus kaokoënsis n. sp.

Two ♂-specimens in the South African Museum collections very closely resemble the preceding species *ectophaeus*, but differ from the latter in the following respects:

Body with the occipital part, especially on sides, behind eyes entirely or mainly yellowish red and not black as in *ectophaeus*; abdomen above with the red distinctly more extensive, the black parts being represented by much smaller discal triangles. *Vestiture* very similar, but with the upper part of mesopleural tuft mainly fulvous yellowish, including only a few black bristly hairs and not numerous and dense ones as in *ectophaeus*; metapleural tuft either entirely yellowish or with only a very few dark hairs in hinder part; hairs on venter entirely or mainly black, not whitish or sericeous; scaling on abdomen above with apparently more numerous and more extensive black ones and fewer greyish or greyish-gleaming ones. *Wings* with a very similar pattern, but clear part at apex of marginal cell slightly larger; second or middle dark band on the whole broader, occupying more of apical parts of first and second posterior cells, being also broader on hind margin, only a little narrower than clear indentation (very much so in *ectophaeus*), its projection into clear indentation at base of second posterior cell distinctly shorter and smaller; clear indentation distinctly much narrower posteriorly, including less of apical parts of anal and axillary cells, its part in discoidal cell distinctly smaller and more rounded; pale spot in first posterior cell fainter, less conspicuous; first posterior cell itself relatively narrower, more gradually narrowed apically; basal part of second posterior cell not or scarcely, at least not very obviously, longer than part along first posterior cell as in *ectophaeus*. *Head* with the style of antennal joint 3 relatively longer, about $1\frac{2}{3}$ to 2 times length of joint. *Hypopygium* of ♂ very similar, but broadened apical part of aedeagal process slightly broader, more rapidly narrowed to neck-region; lateral struts much broader.

From 2 ♂♂ in the South African Museum.

Length of body: about 13–14 mm.

Length of wing: about 14–15 mm.

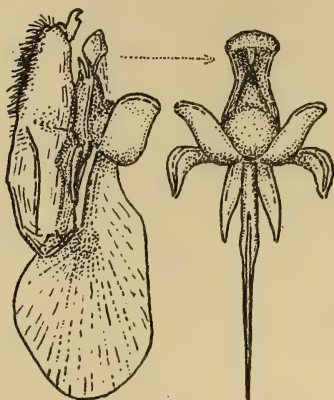
Locality: South-West Africa: Warmbad in the Kaokoveld (Mus. Exp., Feb. 1925) (type); Kaross in the Kaokoveld (Mus. Exp., Feb. 1925).

Litorrhynchus vernayi n. sp.

(*Syn.* = *nyasae* Hesse, nec Ricardo, p. 175, *Ann. Transv. Mus.*, xvii, 1936.)

These specimens which I referred to *nyasae* in 1936 can no longer be retained in that species, notwithstanding the fact that the wing-pattern is the same and the infuscation also occupies the entire apical part of the marginal cell. From the typical *nyasae* they differ in being on the whole smaller, in having the style of the third antennal joint relatively much longer and quite $1\frac{1}{2}$ to 2, or even a little more, times length of small, conical third joint; occipital part on sides behind eyes entirely black or with more black; second dark band in wings distinctly broader, occupying entire hind margin of third posterior cell and also more than half that of second posterior cell and outer margin of this band not straight but with a slight step opposite base of second submar-

ginal cell; the latter cell with the part along first posterior cell distinctly and conspicuously longer than part along discoidal cell; first posterior cell less narrowed apically and on the whole narrower; second vein usually distinctly more sharply or subangularly bent apically; part of clear indentation in discoidal cell more quadrate and the indentation relatively much narrower on hind margin; abdomen above without any, or with very much fewer, dark or black scales, the predominantly pale or greyish yellowish or greyish brownish scales individually also broader; hairs in meso- and metapleural tufts predominantly yellowish or with fewer dark elements; and with the apical part of aedeagal process of hypopygium of ♂ (text-fig. 210) slightly differently shaped.



TEXT-FIG. 210. Side view of hypopygium and ventral view of the aedeagal apparatus of ♂ *Litorrhynchus vernayi* n. sp.

From 4 ♂♂ and 5 ♀♀ (types in the Transvaal Museum).

Length of body: about $6\frac{1}{2}$ –10 mm.

Length of wing: about 9–11½ mm.

Locality: Bechuanaland: Damara Pan (V.-L. Kal. Exp., 15–21 April 1930) (types); Kaotwe (V.-L. Kal. Exp., 8–12 April 1930).

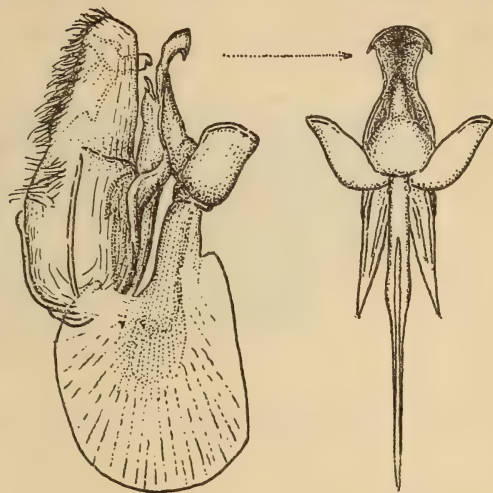
Litorrhynchus dentiferus Bezz.

(Bezzi, p. 632 and pl. L, fig. 11, *Trans. Ent. Soc. Lond.*, 1911 (1912);

Bezzi, p. 218 and fig. 19, *The Bombyliidae of the Ethiopian Region*, 1924; Hesse, p. 174, *Ann. Transv. Mus.*, xvii, 1936.)

This striking and handsome species cannot be confused with any other South African species except *basalis*. Its entirely pale reddish or reddish brown body and legs on which only two or three narrowish thoracic stripes, the narrow base of scutellum and a row of triangular, discal patches on abdomen above, or in some ♀♀ also narrowish, transverse, basal, tergal and sternal bands are black, readily distinguish it from other species. The characteristic wing-pattern in which the pale yellowish brown infuscation is well marked off from a paler yellowish base and in which the infuscation in marginal cell and especially in first posterior cell is produced tooth-like and the reddish veins distinguish this species from all others including *basalis* and *ricardoii*. The reddish golden hairs on sides of face and entirely fulvous reddish or orange fulvous hairs in collar and on pleurae, the much fewer dark bristly hairs on sides of thorax, the presence of some reddish prealar and postalar bristles, the entire absence of black scaling on body, the very short, non-bushy and sparser hairs on sides of abdomen and the almost uninterrupted band of white scaling across hind

margin of tergite 3 also distinguish it from all others except *basalis*. Moreover the modified front tarsi, especially in ♀, are relatively thicker and stouter and the outer front claw is also more distinctly shorter than inner one than in other South African species. From *basalis* it may be distinguished by the longer projection of the infuscation in marginal cell, the tooth-like extension in first posterior cell, the much narrower hind margin of third posterior cell which is less than twice width of second posterior cell, the reddish prealar and postalar bristles, the much sparser and shorter hairs on sides of abdomen and the relatively thicker and stouter front tarsi.



TEXT-FIG. 211. Side view of hypopygium and ventral view of the aedeagal apparatus of ♂ *Litorrhynchus dentiferus* Bezz.

Hypopygium of ♂ (text-fig. 211) with a backwardly directed spine-like process on each side apically of the aedeagal process.

In the Transvaal and South African Museums.

Length of body: about 11–14½ mm.

Length of wing: about 20–21 mm.

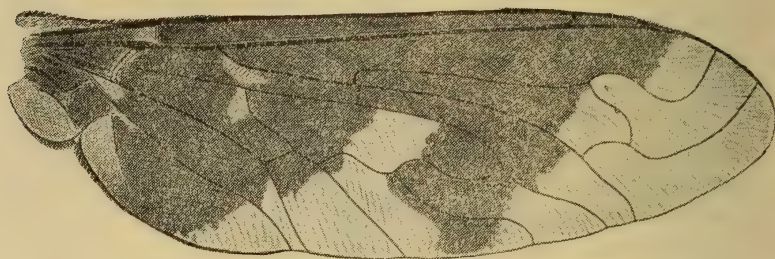
Locality: Within our area it occurs only in the north subtropical parts of Southern Africa, North Transvaal, Rhodesia and Northern Bechuanaland. Originally recorded from Nyasaland and also Portuguese East Africa.

Litorrhynchus bechuanus (Hesse)

(Hesse, p. 175 and fig. 1, *Ann. Transv. Mus.*, xvii, 1936.)

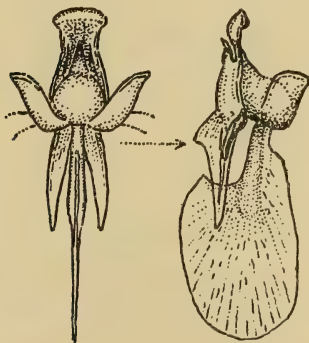
This rather smallish species which I described from Bechuanaland in 1936 as an *Exoprosopa* can be readily distinguished from all other South African species by the characteristic wing-pattern (text-fig. 212) in which the middle band beyond the clear indentation is markedly narrow and more reduced than in other species and much narrowed on hind margin where it occupies only a small part of hind margin of third posterior cell; the greater part of hind margin of this cell and entire hind margin of second posterior cell being clear. The outer or apical margin of this second band is much like that of some forms of *nyasae*, but is more truncately produced step-like for a little distance down first posterior cell; margin of infuscation in first submarginal cell is also obliquely straight or substraight, not concave as in most other species. Infuscation in

marginal cell extends prong-like up to level of end of first vein, much like that in *dentiferus* and forms of *nyasae*. The hind margin of third posterior cell is less than twice that of second posterior cell and the first posterior cell is distinctly less narrowed apically and relatively more broadly open than in other species.



TEXT-FIG. 212. Wing of *Litorrhynchus bechuanus* (Hesse). (After Hesse, Fig. 1, p. 175, *Ann. Transv. Mus.*, xvii, 1936.)

Other characters are the rather dark frons which is yellowish only on sides in anterior half and to a much lesser extent on each side in basal half; the variable dark sides of face; the bulb-shaped, conical, third antennal joint of which the slender style is at least $1\frac{1}{2}$ times as long as the joint; the predominant pale or greyish yellowish to yellowish scaling on abdomen of which that discally on tergites 4 and 5 and even between the two white patches on tergite 3, apart



TEXT-FIG. 213. Ventral and side views of aedeagal apparatus of hypopygium of ♂ *Litorrhynchus bechuanus* (Hesse).

from that on last two tergites, are white or whitish; and the relatively well-developed and dense spicules on front tibiae. From certain forms of *nyasae* it may at once be distinguished by the more narrowed and more reduced second band in wings, the much narrower third posterior cell, more broadly open first posterior cell, darker frons and sides of face, more white scaling discally on hind half of abdomen, broader black base of scutellum, relatively less red on sides of abdomen and the broader black or dark bases of sternites and the predominantly dark hairs on venter. *Hypopygium* of ♂ (text-fig. 213) resembles that of *vernayi*.

In the Transvaal Museum and the Commonwealth Institute.

Length of body: about 9–10½ mm.

Length of wing: about 11–12 mm.

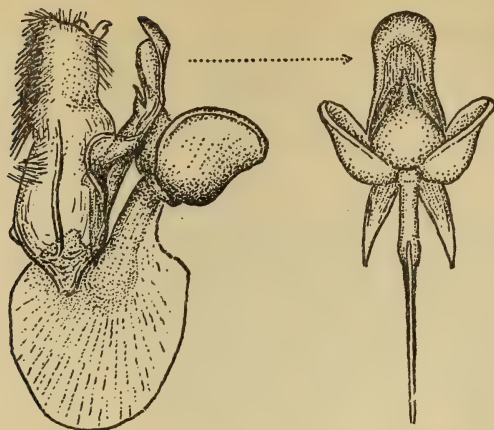
Locality: Bechuanaland and also Southern Rhodesia.

Litorrhynchus rostratus (Lw.)

(Loew, p. 230 and tab. ii, fig. 28, *Dipt. Faun. Südaf.*, i, 1860.)

Notwithstanding Loew's long description and good illustration of the wing of the ♀-type specimen he had before him, there is some doubt about the true identity of this species, which can only be cleared up by an examination of the original specimen. Five specimens in the collections before me, however, agree very well with Loew's description and the pattern in their wings is identical with that given in his illustration. On comparing Loew's description and these specimens, which I take to be the same as his species, with Bezzi's references and comments on *rostratus* (pp. 633, 634 and 635, *Trans. Ent. Soc. Lond.*, 1911 (1912) and p. 218, *The Bombyliidae of the Ethiopian Region*, 1924) it is, however, quite obvious that Bezzi was not acquainted with the true *rostratus* and that he confused it with other species. In his monograph (1924) he even established it as a synonym of *maurus* to which species it has no resemblance whatever as I have already pointed out under that species. The chief characters of *rostratus* are:

Body predominantly black above; humeri, postalar calli, scutellum, sides of tergites 2 and 3, hind margin of 1 and hind margins narrowly of the rest, however, reddish brown or yellowish reddish; frons and face yellowish brown or brownish, but posterior part of frons, vertex and sides of face or sometimes also middle of frons and face darkened to a variable extent; occipital part and sides behind eyes usually dark, but sometimes with infusions of yellowish; pleurae brownish; venter more yellowish brown in ♂, darker in ♀, or with the bases of sternites more broadly darkened in ♀. *Vestiture* with the hairs on head entirely black; those in collar anteriorly and in upper part of propleural tuft yellowish; bristles and rest of hairs on pleurae, in metapleural tuft and on coxae black or dark, but with some brownish golden intermixed hairs and hair-like scales on pleurae; hairs on abdomen above, on sides and below, excepting only the white basal tuft and white plumula, black; scaling on thorax above mainly greyish yellowish, gleaming brassy; that on abdomen above mainly dark, gleaming brassy in certain lights; patch of white scales on sides of tergite 3 rounded; scaling on venter not dense, gleaming brassy yellowish; that on legs mostly dark, gleaming slightly more brownish or greyish yellowish in certain lights. *Wings* with the infuscation blackish brown, its outer or apical margin irregular, the part along vein between first posterior and first submarginal cells projecting tooth-like, the infuscation in marginal cell ending somewhat truncately above submarginal cross vein, but indistinctly continued faintly streak-like below end of first vein, its greater apical part clear; apical margin of broad basal band substraight; second band ending fairly broadly on hind margin, occupying most of hind margin of third posterior cell and base of that of second posterior cell; clear indentation only a little or scarcely broader than deep, the part in discoidal cell not rounded; hind margin of



TEXT-FIG. 214. Side view of hypopygium and ventral view of the aedeagal apparatus of ♂ *Litorrhynchus rostratus* (Lw.).

third posterior cell about $1\frac{1}{2}$, or a little more, times as broad as that of second; halteres brown, apices of knobs yellowish above. Head with antennal joint 3 conical, its style from $1\frac{1}{3}$ to $1\frac{1}{2}$ times as long as joint; proboscis dark, about 4.6–5.6 mm. long. *Hypopygium* of ♂ (text-fig. 214) with the crest of hairs on dorsal aspect of basal parts rather more spine-like and stouter than in all the preceding species.

In the Transvaal and South African Museums.

Length of body: about $10\frac{1}{2}$ –16 mm.

Length of wing: about 13 – $17\frac{1}{2}$ mm.

Locality: On mountains in Western Cape to Algoa Bay.

Litorrhynchus dilatatus Bezz.

(Bezzi, p. 634, *Trans. Ent. Soc. Lond.*, 1911 (1912); Bezzi, p. 475, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 225, *The Bombyliidae of the Ethiopian Region*, 1924.)

The identity of the South African representatives of this species is based on a ♀-specimen from South-West Africa which Bezzi labelled as *dilatatus* and which more or less agrees with Bezzi's description of the species (loc. cit., 1911 (1912)). Judging from the fairly long series of South African specimens in the collections before me and also from Bezzi's description and comments it is, however, evident that this species is variable to a certain extent in the length of the third antennal joint, the extent of the clear indentation in the wings, the extent of the second band and the extent of the yellowish hairs on the pleurae anteriorly.

It is very near *rostratus* as defined above and may almost be considered as a variable form of it. It differs, however, in having the sides of face and basal half of frons or even greater part of head in front more constantly and more obviously darkened to a variable extent; in having a distinctly longer and characteristic third antennal joint which is distinctly very much or much longer than its stylar element; in having the extension of the clear area into discoidal cell distinctly more rounded, appearing more pinched off, due to a narrowish neck or part formed by a blunt or very angular extension of the basal band

projecting into base of third posterior cell and another, more constant, tooth-like projection opposite it also into base of third posterior cell from the second band; in having the second band more narrowed on hind margin, more often fading out or not reaching the hind margin, where it leaves a larger or more distinct basal part of hind margin of third posterior cell clear. *Hypopygium* of the ♂ (text-fig. 215, left) differs from that of *rostratus* in having a slightly narrower aedeagal process and narrower lateral struts.

In the Transvaal and South African Museums.

Length of body: about 11–16½ mm.

Length of wing: about 12–20½ mm.

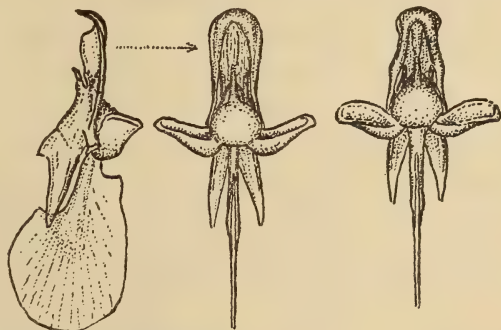
Locality: Karoo, North-west Karoo, Orange Free State, South-West Africa and Southern Rhodesia.

A specimen of this species in the South African Museum was supposed to have been hatched from a mud nest of the Sphegid-wasp *Sceliphron spirifex* (not *quartinae* as stated), together with an Ichneumonid and a Mutillid, by Péringuey and is probably the species alluded to by Bezzi under *tollini* (p. 138, *Ann. S. Afr. Mus.*, xviii, 1921). In this case Péringuey was probably responsible for wrongly identifying the species as *tollini*.

Litorrhynchus damarensis n. sp.

Representatives of this species so closely resemble *dilatatus* superficially that they may almost be considered as a variety of the latter, but they differ from *dilatatus* s. str. in the following respects:

The clear indentation in wings is distinctly narrower on hind margin, occupying only the extreme apices of anal cell and axillary lobe, its extension into discoidal cell distinctly less pinched off, with a broader neck; the extension from basal infuscation into base of third posterior cell much blunter or scarcely evident, the outer margin of basal infuscation thus straight, more like that of



TEXT-FIG. 215. Side and ventral views of aedeagal apparatus of ♂ *Litorrhynchus dilatatus* Bezz. and right ventral view of same structure of ♂ *Litorrhynchus damarensis* n. sp.

rostratus; second band relatively broader on hind margin, always reaching it and not fading out; a distinct, though faint, streak-like infuscation below first vein in apical part of marginal cell is more marked and reminiscent of that of *obumbratus*. Fewer yellowish hairs are present in propleural and mesopleural tufts, the latter and lower part of former sometimes entirely dark. The greatest

difference is, however, in the length of the third antennal joint which is distinctly much shorter in relation to length of its style, being shorter than the latter or only very slightly longer. The shape of the ventral aedeagal process of the hypopygium of the ♂ (text-fig. 215, right) is also different.

From *rostratus* it may at once be distinguished by the relatively much shorter style which in *rostratus* is much longer than third joint itself; clear indentation in wings distinctly more pinched off in discoidal cell, the part in discoidal cell smaller, more rounded, not quadrate; outer margin of basal infuscation not so straight as in *rostratus*; hair in propleural and mesopleural tufts not so extensively dark as in latter; and the aedeagal process is differently shaped.

From 9 ♂♂ and 2 ♀♀ (types in the South African Museum and paratypes in the Transvaal Museum).

Length of body: about 11–18 mm.

Length of wing: about 12–22 mm.

Locality: South-West Africa: Kaross (Mus. Exp., Feb. 1925) (holotype); Okorosawe (Mus. Exp., March 1926) (allotype); Windhoek (Wilde). North Transvaal: Louis Trichardt in the Zoutpansberg (Lawrence, Feb. 1928).

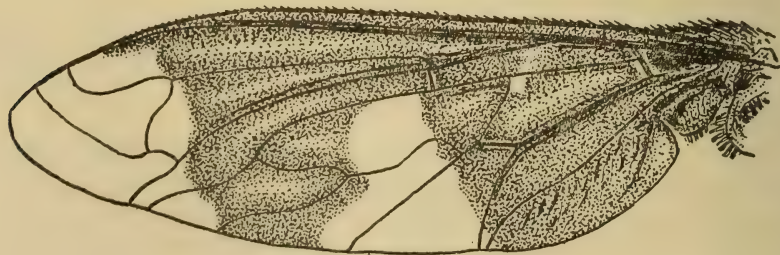
The large ♀-paratype from the Zoutpansberg differs from the more typical form in having more numerous yellowish hairs on pleural parts in front and the apical parts of anal cell and axillary lobe slightly more extensively clear.

Litorrhynchus obumbratus Bezz.

(Bezz., p. 226, *The Bombyliidae of the Ethiopian Region*, 1924.)

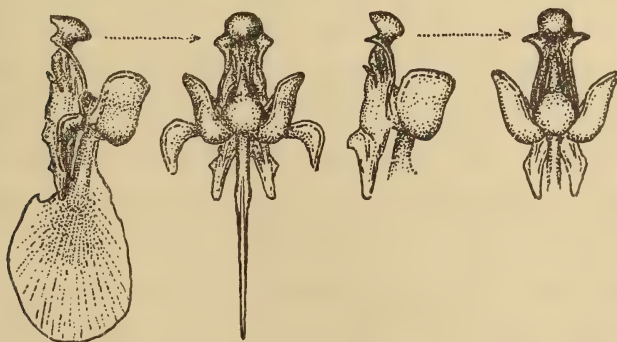
(Syn. = *macropterus* Ricardo, nec Loew, p. 96, *Ann. Mag. Nat. Hist.*, vii (7), 1901.)

This species which Bezzi originally described from the Congo and the Lualaba River is evidently a widely distributed species subject to slight regional and local variation. According to Bezzi's key to the species of *Litorrhynchus* and his brief comparative description, this species is easily recognizable by its wing-pattern which has some resemblance to that of some forms of *erythraeus*, but which is chiefly characterized by the distinct and conspicuous streak-like, apical exten-



TEXT-FIG. 216. Left wing of *Litorrhynchus obumbratus* Bezz.

sion of the infuscation in the apical part of the marginal cell just below the end of first vein. This species is, however, nearer *dilatatus* and *damarensis* as far as the wing-pattern is concerned and in the case of the latter an indication of a faint streak is also present apically below first vein. The infuscation in the wings (text-fig. 216) is very dark blackish brown to black and distributed as shown in text-figure; that in marginal cell ends abruptly above submarginal cross vein, but is characteristically continued in the form of a distinct and conspicuous streak just below first vein to its end; the entire outer or apical margin of infuscation is less irregularly zigzag than in *dilatatus* and *damarensis*; the extension in first posterior cell feebler and blunter and the margin of the infuscation in apical part of first submarginal cell less deeply concave, shallower; clear indentation with the part in discoidal cell less pinched off, the neck being broader, the indentation also relatively narrower on hind margin; second posterior cell distinctly very much shorter along first posterior cell, this distance being subequal to, or scarcely, or only a little longer than, base of cell along discoidal cell and not as in *dilatatus*, *damarensis* and *rostratus* very much or conspicuously longer. In this respect it also differs from forms of *erythraeus*. In other respects it differs from *dilatatus* and *damarensis* in having the head in front and face on the whole much darker, the black on sides of the latter more extensive; in having the abdomen much darker, the red on sides of tergites 2 and 3 often wanting in ♀ and more reduced in ♂, and venter usually entirely dark in ♀ and with more black in ♂ than in *dilatatus*. Moreover the third antennal joint is on the whole relatively shorter and its style is subequal to, a little shorter than or only a little longer than the joint. The hairs on humeral angle, in meso- and metapleural tufts are predominantly or entirely black in one form. *Hypopygium* of ♂ with the aedeagal process (text-fig. 217, left) hollowed, cup-like or hood-shaped apically, its sides subapically angularly prominent.



TEXT-FIG. 217. Left: Side and ventral views of detached aedeagal apparatus of ♂ *Litorrhynchus obumbratus* Bezz. Right: Side and ventral views of anterior part of aedeagal apparatus of ♂ *Litorrhynchus atricapillus* n. sp.

In the British, Rhodesian, South African and Transvaal Museums.

Length of body: about $11\frac{1}{2}$ –17 mm.

Length of wing: about $13\frac{1}{2}$ –22 mm.

Locality: Zululand, Transvaal and Southern Rhodesia.

As has already been stated under *macropterus*, Ricardo wrongly referred a ♂ and a ♀-specimen collected by Distant at Pretoria to *macropterus* (Lw.), a species which has a different wing-pattern and a third posterior cell which is much more than twice as broad as second posterior cell on hind margin and which has a very much longer style to third antennal joint.

Litorrhynchus atricapillus n. sp.

Body mainly black; scutellum, except for base, and a spot on each side of tergite 2 or on both 2 and 3, reddish, the spots on abdomen, however, sometimes indistinct or wanting; venter either entirely dark or with the hind parts of sternites or basal half of venter sometimes yellowish brown; pleurae brown or dark brownish; head in front yellowish brownish to brown or even darker, sometimes becoming paler on frons in front and discally on face, but sometimes even face discally dark, only apical rim yellowish; legs yellowish brown to reddish brown, but appearing dark or black owing to dark scaling. *Vestiture* with the hairs and bristles predominantly black above and below; those in collar anteriorly and on anterior part of humerus fulvous yellowish to golden in certain lights, sometimes with a slight reddish brownish sheen in propleural tuft and with a few yellowish or brownish hairs intermixed in mesopleural tuft; plumula and tuft at base of abdomen white; scaling mostly black; that on head in front gleaming brassy yellowish; that on thorax dark, but gleaming silvery greyish to reddish golden in certain lights; hair-like ones on each side gleaming reddish brownish to reddish golden; that on abdomen above and below and on legs dark; white patch on sides of tergite 3 quadrangular. *Wings* much like those of *obumbratus*, the infuscation dark blackish brown, a distinct streak-like extension of infuscation in apical part of marginal cell below first vein, however, wanting; basal band with its outer margin straight or sub-straight, leaving only extreme apex of anal cell and sometimes also that of axillary lobe clear; second band fairly broadish on hind margin, its outer margin not so irregularly zigzag as in *rostratus* and *dilatatus*; third posterior cell a little more than $1\frac{1}{2}$ times width of second posterior cell on hind margin; the latter with its side along first posterior cell subequal to or a little shorter, or a little longer than, side along discoidal cell; squamae dark brownish, dark-fringed; halteres dark or blackish brown, the upper apical rim of knobs sometimes pale. *Head* with the third antennal joint conical, a little shorter than its style; proboscis black, relatively short, about 2.3–4.1 mm. long. *Hypopygium* of ♂ with the aedeagal process (text-fig. 217, right) like that of *obumbratus*, but the lateral subapical processes sharper and longer.

From 3 ♂♂ and 4 ♀♀ (holotype in the Transvaal Museum, allotype in the South African Museum and a paratype in the Rhodesian Museum, and a shrivelled specimen in the Commonwealth Institute).

Length of body: about 10–14 mm.

Length of wing: about 12–18 mm.

Locality: Transvaal: Pretoria (Impey, 2 Dec. 1915) (holotype); Moselekaatsnek (Swierstra, 10 Jan. 1928). Orange Free State: Smithfield (Kanne-meyer, 1910). Southern Rhodesia: Matetsi (Stevenson, 30 March 1934 (allotype); Saw Mills (Rhod. Mus., 21 March 1937); Beit Bridge (Mackie, April 1932).

This species resembles *obumbratus* in the pattern of its wings, but may at once be distinguished by the absence of a distinct and conspicuous streak-like extension of the infuscation in marginal cell apically, narrower clear indentation on hind border, almost entirely dark apical part of anal cell, broader second dark band on hind margin and entirely or predominantly dark hair on pleurae. From certain forms of *erythraeus* it may be distinguished by the broader second band on hind margin, less triangular-shaped and narrower clear indentation which occupies very much less of apical parts of anal and axillary cells and relatively shorter third antennal joint.

Litorrhynchus pseudocollaris Bezz.

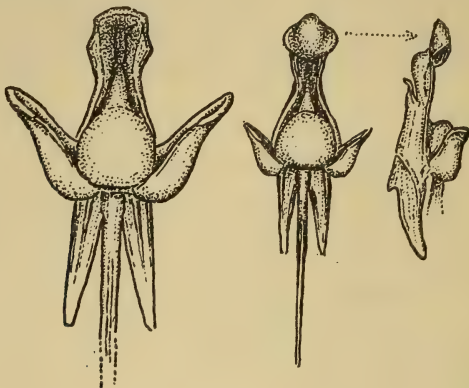
(Bezzi, p. 219 and fig. 20, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Syn. = *maurus* Bezzi, in part, nec Thunberg, p. 137 and 138, *Ann.*

S. Afr. Mus., xviii, 1921.)

This species which Bezzi described in 1924, but of which he wrongly determined a ♀-specimen in 1921 as *maurus* (Thunb.), very closely resembles the latter. It may, however, be readily distinguished by the very much narrower second band of the infuscation on hind margin of wings, the more extensive clear part at apices of anal cell and axillary lobe and above all the very much shorter second posterior cell which is much less curved and elongate and of which the part along discoidal cell is distinctly very much shorter than base of third posterior cell along discoidal cell, and part along first posterior cell is usually longer or at least subequal to, not shorter than, part along discoidal cell, and hind margin of third posterior cell is also usually much shorter than in *maurus* and not much more than twice width of hind margin of second posterior cell, whereas in *maurus* this is usually much more than $2\frac{1}{2}$ times. There is also a tendency for the infuscation to be sometimes paler, more brownish or reddish brownish. The reddish on sides of abdomen is also distinctly more extensive, even extending to apex, or hind margins of posterior tergites are more extensively reddish, especially on sides. The hairs in collar, propleural tuft and in anterior upper part of mesopleural tuft, though also reddish, not so intensely fiery reddish; and the patch of white scales on sides of tergite 3 distinctly larger, more quadrangular, not rounded.

From certain forms of *erythraeus* it may at once be distinguished by the reddish hair in collar and on front part of pleurae, more extensive reddish on sides of abdomen, shorter third antennal joint, slightly narrower clear indentation on hind margin of wings and slightly, but distinctly, broader second band on hind margin. The aedeagal process of aedeagal apparatus (text-fig. 218, left) of ♂ differs from that of *maurus* in having the sides of the apical part sinuous.



TEXT-FIG. 218. Left: Ventral view of aedeagal apparatus of ♂ *Litorrhynchus pseudocollaris* Bezz. Right: Ventral and side views of aedeagal apparatus of ♂ *Litorrhynchus erythraeus* subsp. *allothyris* Bezz.

In the Transvaal and South African Museums and Commonwealth Institute.

Length of body: about 13–16 mm.

Length of wing: about 15–19 mm.

Locality: Natal, Eastern and North-eastern Transvaal, Southern Rhodesia, Portuguese East Africa, Nyasaland and the Belgian Congo.

As was stated under *maurus* there is some suspicion that either *maurus* or this species may be the *tollini* of Loew (p. 15, *Wien. Ent. Monatschr.*, vii, 1863) which is also described as having reddish hair in collar and on anterior part of pleurae. This species, however, appears to be a North-east South African and tropical form whereas *maurus* is more widespread in South Africa and has a greater claim to be the *tollini* of Loew.

Litorrhynchus erythraeus subsp. *allothyris* Bezz.

(Bezzi, p. 329, *Resultats Scientifiques (Ins. Dipt.)*, vi, *Voyage de Ch. Alluaud et R. Jeannel en Afrique Orientale* (1911–12), 1923; Bezzi, pp. 214, 224, 226 and 227, *The Bombyliidae of the Ethiopian Region*, 1924.)

The specimens in the collections before me which more or less agree with Bezzi's short notes and comments on the wing-pattern of the apparently widespread forms and varieties of *erythraeus*, a species which he originally described

from *Erythraea* in 1906 (p. 261, *Bull. Soc. Ent. Ital.*, xxxvii, 1905), are provisionally referred to the latter species and to its East African subspecies *allothyris*. Without an examination and a comparison of the original specimens of Bezzi's *allothyris*, *productus* and *erythraeus* s. str., it is impossible to state whether all these forms and others described from East Africa belong to one species or to separate, but related, species. The wing-pattern in this group is very similar and misleading. The specimens before me show the following characters:

Body mainly black above; front half of frons and face yellowish brown, the basal half of former dark and sides of face in genal parts also brownish; scutellum, excepting black base, hind margin of tergite 1 and sides of 2 and 3 reddish or reddish brown; pleurae brownish to dark brown; venter yellowish brownish in basal half, the sternites from sternite 4, however, only yellowish or yellowish brownish across hind margins; legs yellowish brownish to reddish brown, but appearing dark due to dark scaling. *Vestiture* with the hairs in collar and some hairs intermixed in upper anterior part of mesopleural tuft, some in propleural tuft and a few anteriorly in metapleural tuft yellowish; rest of the hair on these sites and sometimes the entire propleural tuft black; scaling on head in front golden or brownish golden; that on thorax dark, but gleaming brownish golden or bronzy brownish; that on abdomen, excepting the white patches and whitish scaling on last two tergites, black or dark; scaling on legs mainly dark. *Wings* with the pattern described for *erythraeus* and its forms; the infuscation blackish brown, becoming slightly less dark in marginal cell and in second band, with, in addition to the pale spots in basal half, also a slight pale spot on middle cross vein; outer margin of dark basal band straight, the base of third posterior cell scarcely included; second band narrowed on hind margin, occupying only a little more than apical half of hind margin of third posterior cell, the entire apical part of second posterior cell being clear; infuscation in marginal cell ceasing abruptly a little distance before end of first vein; clear indentation triangular, the part in discoidal cell broadly connected with the rest, a considerable part of apices of anal cell and axillary lobe, at least apical third, clear, the indentation thus considerably broader than deep and more so than in *pseudocollaris*; apical margin of third posterior cell much less than twice width of second posterior cell on hind margin; vein between discoidal and third posterior cells longer than that between discoidal and second posterior cells; second posterior cell not long and curved as in *maurus* and the *macropterus*-series; halteres dark brown. *Head* with antennal joint 3 markedly long, at least as long as or much longer than joints 1 and 2 combined and much longer, almost or more than $1\frac{1}{2}$ times as long as its rather stoutish style; proboscis about 4.3–5 mm. long. *Legs* with the longer bristly hairs on front tarsi relatively stouter, longer, more spine-like than in other species, and with the basal tooth on claws rather well developed and stoutish; spines on front tibiae very well developed. *Hypopygium* of ♂ with the aedeagal process (text-fig. 218, right) somewhat resembling that of *obumbratus*, but the sides of apical hood-like part rounded and the cup itself shallower.

In the South African and Durban Museums and in the Agricultural Dept. of Southern Rhodesia.

Length of body: about 12–13 mm.

Length of wing: about 15–16 mm.

Locality: Southern Rhodesia: Vumbu Mountains (Drysdale, 29 April 1935); Salisbury Dist. (Dept. of Agriculture S. Rhodesia, 20 March 1948); Gutu (Bevis, 2 April 1949).

Gen. *Exoprosopa* Macq.

(Macquart, p. 35, *Dipt. Exot.*, ii, 1840; Loew, in part, p. 223, *Dipt. Faun. Südaf.*, i, 1860; Becker, in part, p. 452, *Ann. Mus. Zool. Acad. Imp. St. Petersb.*, xvii, 1912; Bezzi, p. 635, *Trans. Ent. Soc. Lond.*, 1911 (1912); Bezzi, p. 138, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 227, *The Bombyliidae of the Ethiopian Region*, 1924; Paramonow, p. 181, *Acad. d. Sc. de l'Ukraine*, vi (Trav. Mus. Zool. Kiev, No. 4), 1928; Engel, p. 452, *Die Fliegen d. Pal. Reg.*, lief. 101, 1936; Austen, p. 161, *Bombyliidae of Palestine*, 1937.)

This genus which is exceedingly rich in species and very well represented in Southern Africa, as well as in the Ethiopian Region in general, is by no means homogeneous. If a large number of species are, however, examined with the idea of dividing the genus up into subgenera as was done by Bezzi, so many transitional forms are found that any attempt at dividing it into stable subgenera breaks down completely and the conclusion obtrudes itself that notwithstanding its apparent lack of homogeneity *Exoprosopa* is nevertheless stable in most of its generic characters though varying specifically in many and various directions. Such variable generic and specific characters of this genus, as based on the numerous South African species in the collections before me, are as follows:

Body, apart from colour differences which are very variable in their development on the head, scutellum, abdomen or sides of abdomen, venter and legs, usually more or less elongate, with the abdomen usually broad and oval, sometimes somewhat conical and pointed posteriorly, rarely, however, very elongate and subcylindrical. *Vestiture* in form of hairs, bristles, hair-like scales and flattened scales; hairs on head in front not very dense, black in most species, but sometimes pale yellowish or reddish on front part of frons, genal part of face and sides of face; those in collar above always pale, though sometimes with dark ones across its hinder part; prealar, postalar and scutellar bristles usually well developed and long, rarely very short, rarely not black; mesopleural tuft well developed; pteropleuron usually with some backwardly directed, stoutish hairs or bristles in addition to fine hairs or hair-like scales; front part of sternopleuron, hypopleuron, hind part of pteropleuron and metapleural parts bare or with some scaling on latter; hairs on sides of abdomen usually well developed, sometimes densely so, occasionally short and sparse, those on

abdomen above short, usually depressed, becoming longer posteriorly, especially across hind margin of last tergite. *Scaling* on head in front usually pale, sometimes brilliantly shining or silvery or even metallic shining on sides of face, rarely entirely or mainly dark; that on thorax above usually fine, in streaks of pale or dark ones, occasionally entirely pale or dark or even metallic shining; scales in a dense streak on sides of thorax hair-like, more often very pale or whitish, but sometimes more brownish or even black; scaling across hind margin of scutellum and abdomen broader, more flattened, usually dense on abdomen above, rarely without some white, whitish, pale or yellowish ones in either complete or interrupted bands across some of the tergites or at least with some on sides of some tergites, usually with tergites 6 and 7 entirely pale or white-scaled; entire abdomen in some species pale-scaled, without any dark ones; scaling on pleurae usually fine and hair-like, but sometimes flattened or with a patch of dense, flattened, white or whitish ones on sternopleuron; that on venter usually dense; that on legs dense, longish, conspicuous, and feathery on the hind tibiae of a few species. *Wings* (cf. text-figures and plate ii, figures 1-12) entirely hyaline only in a few species, usually with various types of infuscation, assuming a variety of patterns (the ♂♂ of some species with a different pattern from that of ♀♀), more often with the base and anterior costal half or part infuscated to a variable extent, sometimes dimidiately infuscated in both sexes or in ♂♂ only, sometimes with a reticulate appearance, sometimes with cross bands or a backward extension across apical part of discoidal cell, especially in ♀♀ of species in which the ♂♂ have a dimidiate infuscation, very often with spots or clouds on cross veins and bifurcations in addition to anterior infuscation, often entirely mottled or spotted and with spots also near ends of posterior veins; three submarginal cells always present; vein between discoidal and third posterior cells in a certain group with an appendix projecting into latter cell, with this appendix in another group extending right across third posterior cell as a cross vein to fourth posterior cell to form a fifth posterior cell; marginal cell occasionally divided into two by a supernumerary cross vein; discoidal cell assuming a variety of shapes, sometimes dilated apically, sometimes acute or produced apically, often subacute and often subtruncate or truncate apically, its apical cross vein usually S-curved to a variable extent, often very much so and long, sometimes much shorter, straight or substraight; middle cross vein more often around middle of discoidal cell, sometimes nearer base, occasionally much beyond middle; second vein originating opposite or just in front of middle cross vein; first posterior cell more often narrowed, but open apically, sometimes however acute or closed apically, rarely distinctly stalked; anal cell always open apically, even if only narrowly; axillary lobe sometimes very broad and angularly or subangularly rounded, occasionally narrow and scarcely broader than anal cell; basal comb and basal hook well developed; squamae well developed, broad. *Head* with the face always conically or subconically prominent or produced, sometimes very sharply conical; face transversely depressed to a variable extent across its base in a few forms; frons

with a slight central depression which is sometimes scarcely indicated; eyes subangularly indented behind, with a distinct, often longish, bisecting line from indentation, always separated on vertex in both sexes, rarely subcontiguous, in ♂♂, usually broader than ocellar tubercle in ♂♂, usually broader in ♀♀ than in ♂♂; antennae with joint 3 usually elongate-conical, sometimes, however, short, more conical, occasionally pyriform or bulb-shaped, the style (or terminal joint) usually distinctly discernible, often long, but sometimes minute and scarcely discernible; proboscis usually short, projecting only very slightly beyond apex of well-developed buccal cavity, rarely projecting much, often stout; palps elongate, hairy, not visibly jointed; genal part evident as a slight, narrowish, sunken groove or slit. *Legs* usually with spines on middle and hind femora and sometimes with small spinelets above on front ones, occasionally with the spines few or poorly developed and in a few species almost wanting; tibiae usually with well-developed spicules, absent on front ones in most species, but present to a variable extent in quite a number of species; front legs on the whole reduced in size, sometimes markedly so, especially in forms with spicules on front tibiae; front tarsi always modified to a variable extent in both sexes, either thickened and with stoutish, spine-like hairs, or more slender and finely hairy; claws with a distinct, sharp or pointed, or sometimes blunt, basal tooth; front claws reduced in size. *Ovipositor* of ♀♀ with a row of slightly curved spines on each side of which the lower ones are the largest. *Hypopygium* of ♂♂ (cf. text-figures) very uniform and almost similar in a large number of species, often however strikingly different, suggesting generic differences; the shell-like basal parts invariably hairy on dorsal aspect, sometimes with a few characteristic curved or hook-like, dark, flattened, spine-like setae medially and dorsally between the partly fused basal parts, the apical angles of basal parts sometimes prominently projecting and bases sometimes also produced; beaked apical joints always more or less curved, their apical parts directed upwards, their apices usually sharp and in many forms with a slight indentation, giving them a bifid appearance, their outer lateral angles usually prominent, angular, or even bluntly spine-like, and with some hairs, the dorsal surface usually hollowed out or depressed to a variable extent; aedeagus rarely long; a ventral aedeagal process invariably present and well developed, assuming various shapes which are of specific value in the separation of the species; lateral struts fairly uniform, but sometimes broad or much reduced; basal strut assuming various shapes, much reduced and small in a few species.

The hypopygium of the ♂ has not been dissected in species represented by unique ♂♂ or in new species of which only one ♂-specimen is represented.

This genus can only be confused with *Litorrhynchus* and *Thyridanthrax*. From the former, which it very closely resembles and from which it is often not easily distinguished, it differs in having a constantly more produced or conically prominent face; relatively much shorter proboscis which is usually not or rarely longer than head, not or only slightly projecting beyond buccal cavity; in having the front tibiae non-spiculate and slender in most species; a more

slender, spine-like or sharper basal tooth to claws; various other types of wing-pattern and rarely with a *Litorrhynchus*-type of clear indentation at middle of infuscation in wings; and a different arrangement of pale or white scales on abdomen above. From *Thyridanthrax* it may at once be distinguished by the presence of three submarginal cells in wings; different wing-patterns; presence of a basal tooth to claws; long stylar element of third antennal joint; and the relatively less broadened and shortened abdomen. From the very closely related new genus *Atrichochira* described further on it differs mainly in the more conical face; longer sloping occiput; distinctly modified and hairy front tarsi of which the claws are distinctly and often much reduced; better developed basal tooth of the claws; better developed spines and spicules on femora and tibiae; and longer thoracic and scutellar bristles.

On account of the heterogeneity of the genus and the numerous dissimilar elements which comprise it, Bezzi split it up provisionally into eleven separate subgenera, namely *Heteralonia* Rond., *Exoptata* Coq.,* *Mesoclis* Bezz., *Metapenta* Bezz., *Acrodisca* Bezz., *Cladodisca* Bezz., *Trinaria* Muls., *Defilippia* Lioy, *Pterobates* Bezz., *Argyrospila* Rond., and *Exoprosopa* Macq. s. str., of which five are generic creations of various previous authors which had been sunk as synonyms of *Exoprosopa* s. l. In support of these various subgenera Bezzi advanced certain characters and more especially venational ones which are more or less constantly present in certain groups of species. If, however, a long series of specimens within these various subgenera be examined it is quite evident that these distinguishing characters and even the venational ones are by no means exclusively present in the species of any one subgenus. Transitional forms occur which are difficult to place and which in some cases may be assigned to as many as three of these subgenera. In view of the doubtful value of these so-called distinguishing characters and the presence of transitional forms in most of the subgenera which show some of these characters in varying degrees, the various species of these subgenera can at most be only relegated to certain distinct groups or divisions within the comprehensive and heterogeneous genus *Exoprosopa* as was already maintained by Paramonow in 1928 (loc. cit.). In the subjoined key to the South African species of *Exoprosopa* the sections delimiting the species belonging to these various subgenera and summarizing their main characters are conveniently given under their subgeneric names. The various groups and sections of species in the text, however, do not strictly demarcate these subgeneric divisions; they are in most cases artificial and open to criticism. Without a revision of all the species of *Exoprosopa* from all over the world it is impossible and not advisable to allocate certain African groups to new genera or subgenera or even groups of species to certain fixed sections.

In Southern Africa, as in other parts of Africa and also in the Palaearctic Region, this genus is very richly represented in species, though within our

* He subsequently referred the Mediterranean representatives of this American subgenus to a new genus *Zygodiola* based on the North African species *Exoprosopa singularis* Macq. (see pp. 268-9, *Bull. Soc. Roy. Ent. d'Egypte*, 1925).

subregion relatively more species occur in the northern and more wooded parts than in the southern and south-western semi-arid parts. On the other hand certain species occurring in the drier semi-arid parts, such as the Karoo, Namaqualand, Bushmanland and parts of South-West Africa, are of great taxonomic interest; some forms being almost restricted to these dry parts, but with special forms or varietal races extending into the more wooded regions, mountainous parts and coastal areas which border the Karoo plateau. With the exception of a few smallish species, most of the representatives of *Exoprosopa* are fairly large insects and among them are the largest Bombyliids.

Biology. From a biological point of view next to nothing is known of the parasitical habits of these insects. One South African species *Exoprosopa* (*Pterobates*) *apicalis* was reared in the South African Museum from the pupal cocoons of a large Pompilid wasp *Tachypompilus ignitus* which preys upon a large Theraphosid spider *Harpactira* (see under *Exoprosopa apicalis*). According to Bezzi two North American species of this genus are hyperparasites of species of the Hymenopterous genus *Tiphia* which itself parasitizes certain Lamellicorn beetles (*Lachnosterna*). Of the Ethiopian species Bezzi states that 'it is very probable that the majority of Ethiopian species feed upon the egg-cases of locusts'. There is, however, no evidence whatever that representatives of this genus develop in the egg-packets of locusts. On the contrary the little evidence we have seems to indicate that representatives of the three related genera *Litorrhynchus*, *Exoprosopa* and *Ligyra* (*Hyperalonia* olim) parasitize various species of Hymenoptera. As evidence in support of this and apart from the two examples mentioned above, the case of the South African *Litorrhynchus dilatatus* which was reared from the mud nest of a Sphegid (*Sceliphron spirifex*) and the South American species *Hyperalonia morio* which according to Lindner (quoted by Engel) develops in the nests of the fossorial wasp *Bembex* (*Stictia*) *surinamensis* may be mentioned.

Species of *Exoprosopa* are often very difficult to separate and in the subjoined key to the South African species, series of species are often lumped together in sections which are purely artificial and for purposes of identification only; their true natural affinities not being always evident from the key or even in the sections in the descriptive part. Some species which appear to be transitional, which occur in varietal races or which doubtfully fit in one section have also been incorporated in other sections.

Key to the known South African species of Exoprosopa

1. (a) Wings with only 3 submarginal cells of which only one is enclosed and the apical part of wings with only 2 cells; marginal cell not appearing as if divided into two by a supernumerary cross vein, its apex not truncate; apical part of second vein usually only roundly recurved; axillary lobe usually broader, the base of wing rarely appearing as if stalked and if so only 3 submarginal cells are present; first posterior cell usually broader, rarely not distinctly or much broadened beyond middle before it narrows again, its sides rarely subparallel or parallel. 2

- (b) Wings (pl. ii, fig. 12) with 4 submarginal cells of which 2 are completely enclosed and apical part of wings with 3 cells, formed by the division of normal anterior apical cell beyond submarginal cross vein into two by an oblique supernumerary cross vein which also gives the appearance of the marginal cell being divided into two by a cross vein; apex of true marginal cell truncate; apical part of second vein sharply bent at right angles; axillary lobe less developed, markedly narrower and shorter, the base of wings appearing as if stalked; first posterior cell narrow, subparallel or more parallel-sided, scarcely broadened before acute apex. (Dark brownish species, with brownish or chocolate-brownish infuscation and partly confluent spots and clouds on wings, with bands of whitish and ochreous or yellowish scales and black ones across tergites, and a central row of white spots.)

♂ ♀ *Exoprosopa* (*Heteralonia*) *kaokoënsis* n. sp. (p. 909)

2. (a) Vein between discoidal and third posterior cells distinctly angular or sharply angular at its apical part near base of second posterior cell and invariably or constantly provided with a long or short appendix or stump projecting into third posterior cell from this angle, and with this appendix either extending right across to fourth posterior cell and dividing third posterior cell into two or only extending freely for some distance into third posterior cell; wings on the whole more extensively infuscated, reticulate, clouded or spotted. 3
- (b) Vein between discoidal and third posterior cells usually not very sharply angular, only sinuous or rounded near base of second posterior cell and not provided with a long or distinct and constant appendix extending or projecting into third posterior cell (and if such an angularity or vestige of a stump is indicated the wings with more extensive clear areas); wings on the whole with more extensive clear apical and hinder parts and, if extensively infuscated or spotted, posterior vein of discoidal cell without an angular prominence and without an appendix at angle. 42
3. (a) Stump or appendix from angular prominence on vein between discoidal and third posterior cells long and extending right across third posterior cell as a cross vein to fourth posterior cell, dividing the former into two cells and thus producing five posterior cells in wings; front legs only slightly reduced, not markedly shortened, the front femora at least, or almost, $1\frac{1}{2}$ times as long as front coxae; front tibiae smooth, without distinct spicules; front tarsi long and slender, considerably more than half length of tibiae. 4 (*Metapenta*-group) (p. 726)
- (b) Stump or appendix from angular prominence shorter or very short, projecting freely into third posterior cell, not extending as a cross vein right across to fourth posterior cell and not dividing third posterior cell into two, the wings thus with the normal four posterior cells; front legs usually reduced or markedly shortened, rarely long, the front femora usually only about or distinctly less than $1\frac{1}{2}$ times length of front coxae; front tibiae very rarely without distinct and often conspicuous spicules; front tarsi usually much shorter and stouter, only about or only a little longer than half length of tibiae. 13 (*Acrodisca*- and *Cladodisca*-groups)
4. (a) Interocular space on vertex relatively narrower, less than, subequal to, or only a little more than length of antennal joint 3; wings relatively broader, less pointed; discoidal cell distinctly more dilated or broadened apically, more truncate apically, its apical cross vein (between it and second and third posterior cells) more oblique to hind border of wings; second posterior cell not very obliquely rhomboidal; vein from lower apical angle of discoidal cell which divides third posterior cell into two not at right angles to vein between third and normal fourth posterior cells and usually much longer than posterior or apical part of the latter which it cuts off (stalk of enclosed part of third posterior cell); enclosed part of third posterior cell longer, usually not very much shorter than, and often longer than, second part of third posterior cell; base of second tergite without or with only an inconspicuous pale transverse band, rarely with a broad, whitish, transverse band; middle femora with fewer spines below and hind ones usually with only one row of spines below; usually smaller forms, less than 15–20 mm. long, with a wing-length of less than 18–22 mm. 5

- (b) Interocular space relatively very much broader, much broader than length of antennal joint 3, nearly or about as broad as combined length of joint 3 plus its style; wings relatively narrow, more elongate, distinctly more pointed; discoidal cell relatively less dilated or broadened apically, distinctly narrower or more acute apically, its apical cross vein parallel or subparallel to hind border of wings; second posterior cell very or markedly obliquely rhomboidal, its basal part projecting more tongue-like; vein from lower apical angle of discoidal cell, which divides third posterior cell into two, at right angles to vein dividing the latter cells from normal fourth posterior cell and distinctly much shorter than apical part it has cut off; enclosed part of third posterior cell shorter or much shorter than second part of third posterior cell; base of tergite 2 with a very conspicuous, broad, transverse band of white scales; middle and hind femora with more numerous spines in two rows below; usually larger forms, about 15–20 mm. long, with a wing-length of about 18–22 mm.
- ♂ ♀ *cingulalis* n. sp. (p. 734)
5. (a) The spots at base of discoidal cell, on middle cross vein, at base and apex of second vein, at bases of second and third submarginal cells, two at base of second posterior cell, on cross vein dividing third posterior cell and spots at base of enclosed part of third posterior cell and at base of fourth posterior cell rather large, rounded and conspicuous; apical part and hinder half of wings, apart from infusions along veins, slightly less uniformly infuscated, more greyish hyaline, more reticulate and clear parts in two apical cells not contrasting with rest; enclosed part of third cell shorter, distinctly shorter, rarely longer or subequal in length to second part of third posterior cell; a fairly conspicuous, broadish, transverse band of whitish scaling present across base of tergite 2. 6
- (b) Spots either not present at all on these sites or if present those in hinder parts smaller, fainter or indistinct; hinder half of wings up to first posterior cell darker and more uniformly so, not or scarcely much fainter than costal part, not so distinctly reticulate and with only a few clearer streaks in some of the cells, and clear parts in apical two cells conspicuous; enclosed part of third posterior cell longer, longer or much longer than second part of third posterior cell; base of tergite 2 without a conspicuous or broadish, transverse band of whitish scaling, any pale scaling there being more yellowish or the band narrower. 8
6. (a) Enclosed part of third posterior cell subequal in length to or distinctly shorter or much shorter than second part of this cell; hair on pleural parts with more numerous pale hairs or even almost entirely pale or yellowish; metapleural tuft with more yellowish hairs or predominantly yellowish; red on sides of tergites 2 and 3 more extensive; venter with more yellowish. 7
- (b) Enclosed part of third posterior cell quite as long as or slightly longer than second part of this cell; hair on pleural parts predominantly dark; metapleural tuft with more black bristles; red on sides of tergites 2 and 3 reduced or confined to extreme sides; reddish on venter less extensive.
- ♀ form of var. *reticulata* of *pentala* Macq. (p. 727)
7. (a) Entire face or greater discal part of face, greater part of scutellum, sides of tergites 2–5 in ♂ and 2 and 3 in ♀ broadly, the broader hind margins of tergites, greater part or entire venter (excepting only middle row of black spots), and legs yellowish red or reddish brown; style of antennal joint 3 relatively shorter, shorter than half length of joint; spots or clouds on cross veins in wings usually larger, more conspicuous.
- ♂ ♀ *pentala* Macq. (p. 727)
- (b) Sometimes entire or greater part of face, entire or greater part of scutellum black or dark; sides of tergites 2 and 3 in both sexes much more narrowly reddish or entirely dark; sides of venter more narrowly or more obscurely reddish; legs darker or at least their upper surfaces much darker; style of third antennal joint relatively slightly longer, about or quite half length of joint; spots or clouds on cross veins sometimes tending to be smaller, narrower or fainter.
- ♂ ♀ var. *reticulata* of *pentala* Macq. (p. 727)
8. (a) Pleurae with much or predominantly pale or yellowish hairs and metapleural tuft also predominantly pale-haired or with more pale hairs anteriorly; base of tergite 2 on

sides with some pale hairs and venter at least in basal half with pale hairs; scaling on tergites above discally with more or much pale scaling and with much pale scaling also on venter; greater part or entire face, sides of abdomen and the venter more extensively yellowish or reddish brown, and legs on the whole paler, more yellowish.

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- (b) Pleurae entirely black-haired or at least with more black hairs and metapleural tuft with more black hairs; base of tergite 2 black-haired like rest of sides (only base of tergite 1 pale-haired) and venter predominantly or entirely dark-haired; scaling discally on tergites with fewer pale scales, with more dark ones or even entirely dark-scaled, and also with predominantly dark or dark gleaming scales on venter; entire face or its sides extensively dark and sides of abdomen and venter less extensively yellowish, the face and sides of abdomen sometimes almost entirely dark, and legs on the whole darker, darker brownish or even blackish.

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9. (a) Medial part of frons anteriorly to down between antennae black and sides of face with a distinct black spot or infusion; venter usually with a central row of dark or black patches of variable size, the red on sides being more extensive; wings on the whole narrower, the clear areas in discoidal cell and posterior cells more reduced; smaller form, about 10–14 mm. long, with a wing-length of about 11½–15 mm.

♂ ♀ *corvina* Lw. (p. 729)

- (b) Front part of frons and entire face yellowish, no distinct spots on sides of latter; venter in ♀ at least with last 3 or 4 sternites (excepting their hind margins) predominantly dark and sides of basal half reddish; wings on the whole broader, the clear areas in discoidal cell and posterior cells larger, more extensive; larger form, about 14½–16 mm. long, with a wing-length of about 17–18 mm.

♀ *cadicerina* Bezz. (p. 730)

10. (a) Scutellum black only across base or in basal half and face sometimes partly brownish or yellowish; wings more uniformly dark or black, the apical part contrastingly and characteristically clear in second and third submarginal cells, the vein between the latter two cells however infuscated or clouded along its course; entire mesopleural tuft (or excepting only a very few pale hairs in upper part) and the pleurae black-haired; pale scaling on sides of tergites, if present and if white, distinctly less extensive and less dense.

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- (b) Scutellum entirely black and face entirely or uniformly dark or black; wings dark blackish brown in costal part and base, becoming imperceptibly less infuscated, clearer or more greyish apically and posteriorly, the apex of marginal cell and second and third submarginal cells though clearer not contrasting very conspicuously with darker parts, and vein dividing the second and third submarginal cells not clouded or only very indistinctly infuscated along its course; upper part of mesopleural tuft with some or at least more numerous yellowish bristly hairs; sides of tergites with dense and conspicuous, snow-white scaling and last two tergites also discally with uninterupted white bands.

♂ ♀ *dubia* Ric. (p. 733)

11. (a) Body with much pale and yellowish scaling on head in front, on thorax above, across hind margin of scutellum and on sides of abdomen above, with a conspicuous streak of pale or yellowish hair-like scales on each side of thorax and pale scaling across base of tergite 2; face more yellowish brownish discally and with a large dark infusion on sides; sides of tergites 2 and 3 more extensively reddish yellow, and hind margins of tergites more broadly reddish; wings distinctly more uniformly dark blackish brown throughout, with a clear streak practically only in second submarginal cell, apical part of discoidal cell and very indistinctly in cut-off submarginal cell.

♀ *furvipes* n. sp. (p. 730)

- (b) Body either entirely or predominantly covered with greyish or greyish-yellowish gleaming dark or black scaling above and below or only sides of tergites with distinct pale scaling, without any pale streak on sides of thorax or across base of tergite 2; face much darker or even entirely very dark or blackish; sides of tergites 2 and 3 not, only indistinctly, or less extensively reddish, and hind margins of tergites not or only very narrowly and indistinctly reddish; wings either not very uniformly blackish or,

- if uniformly blackish, at least both submarginal cells apically, the apical part of discoidal cell and some posterior cells with clear streaks. 12
12. (a) Head in front and entire body above and below with very dark or black greyish-gleaming or graphite-gleaming scales; face more yellowish brownish discally and more than apical half of scutellum reddish; wings less uniformly dark, with the apical part more clear; vein between two apical submarginal cells only slightly infused along its course; clearer areas in posterior cells more extensive, more distinct; more distinct, conspicuous, rounded spots or clouds present at end of second vein and on cross veins in posterior half of wings; first posterior cell more rapidly narrowed apically from broadest part; modified front tarsi relatively longer, the basal joint markedly shorter than combined length of rest. ♀ *melanostola* n. sp. (p. 731)
- (b) Head in front with more yellowish-gleaming dark scales and sides of tergites with some pale or whitish scaling; face, excepting a yellowish oblique streak below each antenna, dark blackish brown and only about apical half or apical part of scutellum reddish or yellowish; wings more uniformly dark blackish brown to black; conspicuous clearer streaks only in two apical submarginal cells and apical part of discoidal cell and very indistinctly in some of posterior cells; infuscation along vein separating apical two submarginal cells broad; usually or more often without any distinct rounded spot at end of second vein and without any well-defined, or with only ill-defined and indistinct spot-like clouds in posterior half of wings; first posterior cell tending to be less rapidly narrowed apically from broadest part; front tarsi relatively shorter, the basal joint only a little shorter than rest combined. ♂ ♀ *atrella* n. sp. (p. 732)
13. (a) Front legs reduced or markedly short, the front femora less than or much less than $1\frac{1}{2}$ times length of front coxae, the front tibiae stouter and usually with distinct and often conspicuous spicules and front femora often also with distinct spinules, the front tarsi stouter, shorter, only a little less than half length of tibiae; apical part of wings, if clear, less extensively so and invariably with distinct, rounded spots or clouds on submarginal cross veins and often also at ends of either second vein or vein between two submarginal cells and, if without spots along posterior veins, then at least with rounded spots or clouds at bases of posterior cells; body above usually with more numerous dark scales and less extensive yellowish ones, the individual scales above and below also broader; hair entirely black or rarely with a few yellowish ones on sides of face, that on sides of abdomen from tergite 2 entirely black or with more numerous black ones; those on scutellum also entirely black. 14 (*Acrodisca*-group) (p. 736)
- (b) Front legs only normally smaller than rest, not markedly short, the front femora longer, nearly or quite $1\frac{1}{2}$ times length of front coxae, the front tibiae more slender and without distinct spicules and the front femora also without spinules or spines, and front tarsi much longer than half length of tibiae; apical part of wings (pl. ii, fig. 3) beyond level of apex of false vein in costal cell and across to apex of discoidal cell and hinder part clear hyaline, without any rounded spots or clouds in apical clear part, on submarginal cross veins, or at ends of second vein or vein between two apical submarginal cells, and without any spots at ends of posterior veins; body above and below without any or with only sparse black scales, that on abdomen with more yellowish or ochreous ones, the scales finer, more hair-like; hair on sides of face with more yellowish ones and that on sides of abdomen with numerous yellowish ones intermixed with the dark ones; bristly hairs across hind margin of scutellum behind the black ones long, yellowish or golden. ♂ ♀ *acrodiscoides* Bezz. (*Cladodisca*-group) (p. 762)
14. (a) Style of antennal joint 3 much shorter or very short, distinctly less or very much less than half length of joint; face relatively longer; front legs on the whole less stout, more slender, the front femora less broadened in middle or spindle-shaped, without or with scarcely any fine hairs on their outer and lower surfaces, and basal joint of front tarsi not or scarcely much thickened and though with denser hairs in ♀♀ these not conspicuously stiff and rigid; vein between discoidal and second posterior cells longer, more distinctly or more deeply S-shaped and usually parallel or subparallel to hind margin; discoidal cell thus long, its terminal end elongate, more acute; second posterior cell distinctly less rhomboidal. 15

- (b) Style very much longer, at least half or even more than half length of joint 3; face distinctly shorter, markedly shorter than post-antennal part; front legs stouter, the front femora more thickened in middle, more spindle-shaped, with conspicuous longish hairs on their outer and lower surfaces, and basal joint of front tarsi distinctly or markedly thickened, with conspicuous, stiff or rigid hairs above in ♀♀; vein between discoidal and second posterior cells much shorter, not or little S-shaped and distinctly more oblique to hind margin; discoidal cell thus shorter, its terminal end much shorter, less acute and the cell often more truncate; second posterior cell more rhomboidal or more in form of a parallelogram. 40
15. (a) Wings on the whole relatively longer, relatively more parallel-sided, more uniformly dark or infuscated throughout, the only less infuscated or clearer parts, if present, being clearer or more hyaline streaks in middle or apical part of discoidal cell, in the two outer submarginal cells and in middle of posterior cells, the infuscations along posterior veins therefore broader, more extensive, and the rounded spots or clouds on cross veins show up less and are less contrastingly conspicuous against dark background. 16
- (b) Wings relatively shorter, usually less parallel-sided, less uniformly infuscated, the uniformly infuscated part more confined to base and costal part, the apical and hinder parts with more extensive clear areas, or more extensively clear or hyaline or less tinged, the infuscations along posterior veins narrower, less extensive or broken up into isolated spots or even absent, and the spots or clouds on cross veins distinctly more conspicuous and contrasting more against the more extensive clear areas. 23
16. (a) Wings more uniformly infuscated throughout and clearer apical part less extensive, the vein between the two outer submarginal cells also darkly infuscated along its course; front legs relatively shorter and stouter, the spinules on the femora and spicules on tibiae stouter, more conspicuous; anterior part of frons and the face with less yellowish, the latter with a larger black patch or even entirely dark; antennae not entirely yellowish; labella of proboscis narrower, more pointed; black hairs on head in front and sides of abdomen distinctly longer and denser. 17
- (b) Wings less uniformly infuscated, cinnamon-brownish, the apical part more extensively and contrastingly clearer or less infuscated, the vein between two outer submarginal cells being scarcely or not infuscated along its course; front legs more slender, longer, with only very feeble, fine, short and scarcely visible spinules and spicules; anterior part of frons and the face more extensively yellowish, the apical dark spot on face smaller; antennae entirely yellowish; labella more rounded apically and broader; black hairs on head and sides of abdomen distinctly shorter and sparser. ♂ var. of *rubicunda* n. sp. (p. 758)
17. (a) Hairs in mesopleural tuft, on pleurae and venter either entirely or predominantly pale, yellowish or whitish, or with very much fewer dark hairs; scaling on body below, on venter and legs mostly whitish or snow-white, often conspicuously so; that on abdomen above with more pale or whitish scales across tergites in addition to whitish band across base of tergite 2, and usually with a central row of whitish spots; wings more elongate, relatively narrower, parallel-sided, often less uniformly infuscated along hinder and apical parts, clearer streaks in posterior cells being often more evident. 18
- (b) Hairs in mesopleural tuft, on pleurae and venter predominantly or entirely black or dark; scaling on body below darker, more yellowish brownish to dark or black, that on legs mostly dark or black; that on abdomen above usually with fewer pale scales across tergites in addition to the very conspicuous white basal band across tergite 2 and white patch on sides of 3; wings distinctly less elongate, relatively shorter, broader, more uniformly infuscated throughout even if infuscations along course of veins seem darker. 22
18. (a) Style of antennal joint 3 distinctly much longer, quite as long as or even appreciably longer than antennal joint 2; face and anterior part of frons with more yellowish or reddish; scutellum more extensively reddish and venter either predominantly reddish

- or with much broader reddish hind margins, and sides of abdomen on the whole with more reddish; wings either more uniformly infuscated or with the less infuscated areas or streaks in outer two submarginal cells and in posterior cells less contrastingly clear; mesopleural tuft without any or with fewer dark hairs; pale scaling on abdomen above also with much yellowish or ochreous scaling and that on legs gleaming whitish; spicules on front tibiae stouter, more developed; larger forms, about 8–16 mm. long, with a wing-length of about 10–18 mm. 19
- (b) Style very much shorter, scarcely half as long as antennal joint 2, or minute and vestigial; frons and face either entirely or more extensively dark or black; only hind margins of scutellum reddish or entire scutellum black, and venter either entirely dark or with only very narrow and obscure reddish hind margins, and with the reddish on sides of abdomen much reduced or absent; wings with the less infuscated or clearer areas in outer submarginal cells, in middle of discoidal cell and in posterior cells more contrastingly hyaline; mesopleural tuft with more dark or black hairs intermixed; pale scaling on abdomen above mostly or entirely white or whitish and scaling on legs also whitish or gleaming more bronzy or yellowish in certain lights; spicules on front tibiae feeble, less developed; smaller forms about $5\frac{1}{2}$ –11 mm. long, with a wing-length of about $5\frac{1}{2}$ –10 $\frac{1}{2}$ mm. 21
19. (a) Apical, black, discal spot on face slightly less extensive, more or less confined to apical half or extreme apex; red on sides of abdomen more extensive, sometimes very broad, and hind margins of tergites more broadly reddish; wings more uniformly infuscated throughout and less infuscated areas apically and in posterior cells tending to be less evident, with a greater or more constant tendency for an appendix to project into discoidal cell from base of second posterior cell. 20
- (b) Apical black spot on face usually more extensive, usually occupying more than apical half; abdomen with the red on sides much reduced and hind margins of tergites more narrowly reddish or even entirely dark; wings tending to be less uniformly infuscated, the less infuscated areas apically and in posterior cells often more evident, with the base of second posterior cell not or only rarely giving off an appendix into discoidal cell. ♂ ♀ Karoo forms of *offuscata* Bezz. (p. 738)
20. (a) Darker form, with black apical spot on face larger, the red on sides of abdomen even in ♂ less extensive; hairs in mesopleural tuft with some or more numerous dark or black ones intermixed and hairs on posterior part or apical half of venter dark; wings very dark blackish brown to almost black. ♂ ♀ *offuscata* Bezz. s. str. (p. 736)
- (b) More yellowish or paler form, with the black apical spot on face reduced, confined to apex; red on sides of abdomen, especially in ♂, very broad, extensive, sometimes extending as a broad band to apex, leaving only discal parts of tergites black, and venter entirely yellowish; hairs in mesopleural tuft entirely yellowish like rest of hair on pleurae, or with only one or two darker bristly hairs, and most or all the hairs on hind part of venter yellowish like ones basally; wings tending to be more uniformly sienna-brownish or yellowish brown, with more reddish veins. ♂ ♀ Namaqualand form of *offuscata* Bezz. (p. 738)
21. (a) Style of antennal joint 3 visible separately and, though short, about or nearly half as long as antennal joint 2; hind margins of tergites 2 and 3 and to a certain extent hind margins of sternites reddish; mesopleural tuft with fewer dark hairs, the metapleural tuft entirely pale and hairs on sides of abdomen basally with fewer dark ones, and hairs on entire or greater part of venter pale or whitish; scaling on legs darker, gleaming more bronzy, and the legs also paler; infuscations along posterior veins in hinder half of wings more continuous, more extensive, tending less to be resolved into spots or separate clouds and with the clearer streaks slightly less extensive. ♂ ♀ *personata* Bezz. (p. 738)
- (b) Style distinctly shorter, very minute or vestigial, not visible separately and antennal joint 3 itself more conically tapering, relatively shorter; hind margins of tergites, sides of tergites 2 and 3, sternites and sometimes entire scutellum black; mesopleural tuft with more numerous black hairs, the metapleural tuft sometimes with some dark

elements, the hairs on sides of tergite 1 usually with more numerous and denser black hairs apically, and the venter, excepting base, mostly dark-haired; scaling on legs with the pale ones whiter and the legs darker; infuscations along posterior veins in hinder half and on cross veins tending to be more discontinuous or resolved into spots or clouds, the wings thus appearing more spotted.

♂ ♀ var. of *polysticta* n. sp. (p. 746)

22. (a) Antennal joint 3 appearing more truncate apically, its style minute or vestigial; wings more uniformly infuscated, darker infusions along veins and the spots or clouds less evident, and without a conspicuous or darker cloud on submarginal cross vein; scutellum more extensively reddish; scaling on head in front gleaming more yellowish, that on legs with more yellowish brownish or bronzy ones; upper part of mesopleural tuft with more numerous yellowish or gleaming yellowish hairs, some in propleural tuft, and those at base of venter also more yellowish, gleaming more yellowish; fewer and less conspicuous black hairs across hind part of collar above.

♂ *fimbriatella* Bezz. (p. 740)

- (b) Joint 3 tapering more, ending in a very short, but distinctly visible, style about or nearly half length of antennal joint 2; wings tending to be less uniformly infuscated, darker infusions along veins and rounded spots or clouds more evident and with a darker cloud on submarginal cross vein; scutellum reddish only posteriorly; scaling on head gleaming more brownish or bronzy, that on body below also darker, and that on legs more extensively dark, causing them to appear darker; hairs on pleurae and often entire mesopleural tuft and those on venter basally entirely black; denser and more conspicuous black hairs across hind part of collar above.

♂ *furvalis* var. n. of *fimbriatella* Bezz. (p. 741)

23. (a) Wings with infuscations, clouds or spots along some or all the posterior veins or near ends of some of these veins or cells, the wings consequently not so dimidiately divided into an infuscated and spotted anterior part and a clear or clearer unspotted apical and hinder part. 24

- (b) Wings without any infuscations, clouds or spots along or near ends of posterior veins or cells, the wings thus more or less dimidiately divided into an infuscated basal and anterior part, bounded by spots on the cross veins and bifurcations, and a clear or clearer, unspotted and unclouded apical and hinder part. 34

24. (a) Entire frons and face, excepting only an oblique streak under each antenna and to a variable extent extreme sides of face, dark or black; scutellum only reddish in hinder part or sometimes entirely black; abdomen above, including sides of tergites 2 and 3, and either entire venter or excepting only obscure or narrow reddish hind margins, entirely black; humeral part, notopleural part, mesopleural tuft, anterior part of propleural tuft, sometimes metapleural tuft, tuft at base of abdomen, to a certain extent sides of abdomen and venter with distinctly more numerous black hairs or bristly hairs; pale scaling on body above, especially across abdomen above, apart from snow-white cross bands, with more white scaling; wings usually distinctly more extensively infuscated and with more extensive infuscations, spots or clouds along posterior veins and, if less extensively infuscated in hinder half, other characters do not differ. 25

- (b) Frons and face not entirely dark, but with more extensive yellowish between, above and below antennae and if predominantly dark the scutellum is more extensively yellowish; hind margins of tergites either broadly or distinctly reddish, the sides of 2 and 3 broadly reddish, and usually broad hind margins of sternites or even entire venter reddish to a variable extent; notopleural and humeral parts, mesopleural tuft, propleural tuft anteriorly, metapleural tuft, sides of abdomen and venter without any or with much fewer dark hairs; pale scaling on body above, especially abdomen above, apart from the white cross bands and central white patches, also with much yellowish or even ochreous scaling; wings usually less extensively infuscated in apical and hinder half and with less extensive, smaller, more separated spots along posterior veins. 28

25. (a) Style of antennal joint 3 scarcely visible separately, minute, much shorter than even half length of antennal joint 2; wings distinctly more extensively infuscated in apical

- and hinder halves, with extensive infuscation or cloudiness along vein between apical two submarginal cells and with larger infusions or confluent spots along posterior veins, a larger spot or infusion at end of vein between first and second posterior cells or at end of first posterior cell, without a large, well-defined, conspicuous spot near end of anal and axillary cells; discoidal cell distinctly longer, its apical end distinctly more elongate and acute and vein between it and second posterior cell longer, more S-curved, more parallel to hind margin of wing; second posterior cell less rhomboidal; hind margins of sternites not or only very narrowly or obscurely reddish, those of tergites black; front tibiae with feebler spicules. 26
- (b) Style visible separately and, though small, quite half length of antennal joint 2; wings (pl. ii, fig. 1) less extensively infuscated in apical and hinder halves, without any or only a small spot on vein between apical two submarginal cells and with smaller or isolated spots near ends of posterior veins, without any or only a small spot near end of vein between first and second posterior cells, with a constant, large, well-defined and conspicuous spot near ends of anal and axillary cells which is confluent with the spot at base of fourth posterior cell and the general anterior infuscation, and also with a constant hook-like extension of anterior infuscation across apical vein of discoidal cell; discoidal cell distinctly shorter, its apical end shorter, more acute and vein between it and second posterior cell shorter, slightly less S-curved and slightly more oblique to hind margin; second posterior cell tending to be distinctly more rhomboidal; hind margins of tergites sometimes very narrowly reddish and those of sternites more broadly reddish, and only extreme hind border of scutellum reddish; front tibiae with slightly more developed spicules. ♂ ♀ *hamula* n. sp. (p. 746)
26. (a) Wings more extensively infuscated in hinder half along posterior veins and even hind margin infuscated or infused to a variable extent, the clearer parts in posterior cells thus less extensive; humeral part, mesopleural tuft and metapleural tuft usually with more numerous dark or black elements; scutellum tending to be less or more obscurely reddish posteriorly or even entirely black. ♂ ♀ var. of *polysticta* n. sp. (p. 746)
- (b) Wings less extensively infuscated in hinder half along posterior veins, the margin itself not infused, the infuscations in hinder half more resolved into spots or clouds at ends or near ends of posterior veins, the clear parts in apical and hinder halves or in posterior cells thus more extensive; humeral part and meso- and metapleural tufts usually with relatively fewer black hairs; scutellum always reddish across hind half or hind border. 27
27. (a) Anterior and basal infuscation in wings becoming almost imperceptibly clearer apically in anal and axillary cells, there being no distinct or abrupt ending of infuscation in basal half of these cells and no distinct or even faint cloud at end of these cells, the clearer areas in apical and hinder half of wings also more greyish hyaline. ♂ ♀ *polysticta* n. sp. (p. 743)
- (b) Anterior and basal infuscation tending to end more abruptly at about middle of anal and axillary cells, the apical halves of these cells appearing more contrastingly clearer and often with a faint or even more distinct cloudiness or spot at end of these cells or even dividing them, the clearer areas in apical and hinder half of wings appearing more hyaline. ♂ ♀ var. of *polysticta* n. sp. (p. 746)
28. (a) Anal cell and axillary lobe or vein separating them with a distinct, even if faint, spot or cloud across them near their ends and with more distinct spots or infusions near ends of most of posterior veins, the clearer or clear parts in wings usually more hyaline or glassy hyaline, the infuscated parts usually darker, more brownish or coffee-brownish. 29
- (b) Anal cell and axillary lobe or vein between them without any spot or cloud across them near their ends and with fewer, fainter or sometimes even without any infusions or spots near ends of posterior veins, the clearer parts of wings usually more distinctly greyish and the darker parts more yellowish brownish. 31
29. (a) Head in front, including space between antennae, and discal part down face, entirely or predominantly dark or black; hind margins of tergites and sides of tergites 2 and 3

less broadly and less extensively reddish, and hind margins of sternites sometimes also less broadly reddish; wings with the spots, infuscations or clouds in apical part, on cross veins and along posterior veins smaller or more diffuse, often less marked off, with more extensive infuscations or a larger infusion or spot along or near end of vein between the apical two submarginal cells and usually also with a larger, more constant spot near end of vein between first and second posterior cells (if without spots on these veins marginal cell has two clear areas or a longer clear area apically); third posterior cell shorter or much shorter than fourth posterior cell; usually slightly smaller forms, usually less than 11 mm. long, with a wing-length of less than 11 mm.

30

- (b) Head in front usually with more extensive yellowish between antennae or on front part of frons or across base of face, sometimes with the black confined to apical part of face; hind margins of tergites and sides of 2 and 3 more broadly and extensively reddish, and entire venter sometimes reddish; wings with the spots or clouds in apical part, on cross veins and along posterior veins larger or more well defined, without any infuscation or spot, or with only a small spot, near end of vein between apical two submarginal cells (if with a large spot, head in front with more red), and without a spot near end of vein separating first and second posterior cells, and marginal cell with only one clear spot apically; third posterior cell scarcely shorter, usually as long as fourth posterior cell; usually larger form, about 10-13 mm. long, with a wing-length of about 10-13 mm.

♂ ♀ *angulata* Lw. (p. 743)

30. (a) Marginal cell apically with a constant tendency for two clear spots or areas to be present, the dark spot or cloud near end of anal cell and axillary lobe to be distinct and well defined and the infuscations or spots apically and on cross veins and along posterior veins more discontinuous or isolated as spots; discoidal cell relatively shorter and broader; hind margins of tergites and sternites and sides of tergites 2 and 3 more broadly and extensively reddish.

♂ ♀ *recurrens* Lw. (p. 741)

- (b) Marginal cell apically with only a single clear spot, the cloud or infusion near end of anal cell and axillary lobe indistinct, obscure, or even wanting and the infuscations or spots apically and on cross veins and along posterior veins tending to be more in form of continuous infuscations or confluent spots than as isolated ones; hind margins of tergites and sternites scarcely or only very narrowly reddish and red on sides of tergites 2 and 3 almost absent or much reduced.

♂ ♀ *eremochara* n. sp. (p. 751)

31. (a) Front part of head and face narrower, the interocular space on vertex relatively narrower, not much broader than length of antennal joint 3 (minus style); entire frons and face discally and also interantennal space black or dark; hinder half of scutellum reddish and hind margins of tergites more narrowly reddish; mesopleural tuft with more numerous dark or black or deeper reddish hairs intermixed, and black hairs on sides of abdomen slightly longer and denser; wings with more distinct, constant, or more extensive infuscations or clouds along or near ends of all or most veins between posterior cells, with the clear areas apically in enclosed submarginal cell, apical part of first posterior cell and especially discoidal cell less extensive and conspicuous.

32

- (b) Front part of head and face much broader, the interocular space relatively broader, broader than length of antennal joint 3 (minus style); front part of frons, interantennal space and base or basal half of face reddish or brownish to a variable extent or greater part of face often reddish; entire scutellum, excepting very narrow base, and usually very broad hind margins of tergites reddish; mesopleural tuft without any or with much fewer dark hairs intermixed, and the black hairs on sides of abdomen relatively shorter and less dense; wings usually with fewer, fainter and smaller clouds or infusions, or without any spots, near ends of all the posterior veins, the clear areas apically in enclosed submarginal cell, apical half of first posterior cell and especially in more than apical half of discoidal cell more extensive, more conspicuously clear.

33

32. (a) Hind margins of tergites, sides of tergites 2 and 3 and hind margins of sternites broadly and more extensively reddish; extreme front part of frons, interantennal space and sides of face below antennae with more numerous golden or yellowish intermixed hairs and mesopleural tuft with fewer dark hairs or with more numerous reddish or golden ones; wings with the anterior and basal infuscated parts duller yellowish brownish and clearer parts more greyish hyaline, the infuscations or spots along posterior veins fainter or less extensive, the vein between apical two submarginal cells more often without or with a more reduced infuscation and apical part of anal cell without a faint indication of cloudiness. ♂ ♀ *obscuripennis* n. sp. (p. 750)
- (b) Hind margins of tergites not or only very indistinctly and narrowly reddish, the sides of 2 and 3 not reddish or only so on extreme sides, and hind margins of sternites more narrowly reddish; interantennal space and sides of face below antennae without any or with very few yellowish hairs, with more black or dark hairs intermixed on mesopleuron; wings with infuscated parts darker, more chocolate-brownish and the clearer parts more hyaline, the infuscations along posterior veins and on vein between apical two submarginal cells more extensive, and with a faint cloudiness at end of anal cell. ♂ ♀ *eremochara* n. sp. (p. 751)
33. (a) Wings with the infuscated parts darker, more brownish; first posterior cell invariably more acuminate apically, usually acute and closed apically and usually with a distinct, though often small, constant spot or infuscation near end of vein separating it from second posterior cell; more extensive and more constant infusions along vein between apical two submarginal cells, along lower vein of discoidal cell and posterior vein between second and third posterior cells; discoidal cell distinctly longer, its apical part distinctly more produced or elongated, this part tending to be more truncate apically; bands of white scaling across tergites 3-6 tending to be represented only on sides and as a spot discally, being more broadly interrupted by black scaling on each side; style of antennal joint 3 relatively longer and often distinctly longer or much longer than antennal joint 2. ♂ ♀ *gonioneura* n. sp. (p. 749)
- (b) Infuscated parts in wings slightly more yellowish brownish or dull yellowish; first posterior cell more usually open apically and often without a spot near end of vein between latter and second posterior cell; less extensive, less constant and, if present, more spot-like, infuscations along vein between apical two submarginal cells, along apical veins of discoidal cell and on vein separating second and third posterior cells (lower vein of discoidal cell usually not infuscated); discoidal cell distinctly shorter, relatively much broader apically, the apical part distinctly less produced or elongated; bands of white scaling across tergites 4, 6 and 7 continuous and bisinuate, not or scarcely interrupted by the black scaling; style on the whole very much shorter, not or scarcely as long as antennal joint 2. ♂ ♀ *spoliata* Bezz. (p. 747)
34. (a) Anterior part of frons, interantennal space and base of face or even greater part of face reddish; greater part or entire scutellum, hind margins of tergites and sternites broadly and especially sides of tergites 2 and 3 or even sides of abdomen broadly reddish; wings with the infuscated parts more yellowish or reddish brownish and more imperceptibly merging into the clearer more greyish hyaline apical and hinder parts and, if infuscation is darker, the red on head is more extensive; stump from discoidal cell projecting into third posterior cell usually longer, more normal. 35
- (b) Entire frons, interantennal space and greater discal part of even greater part of face dark or black; hinder half or posterior part of scutellum reddish and hind margins of tergites and sternites not or only very narrowly reddish and sides of tergites 2 and 3 usually not or only very obscurely reddish on extreme sides; infuscated parts in wings darker, more brownish to chocolate-brownish, more abruptly or dimidiately marked off from the clearer, more hyaline apical and hinder parts; stump projecting into third posterior cell tending to be shorter or only indicated or even wanting. 37
35. (a) Pleural parts, prosternal, mesopleural and metapleural tufts entirely pale-haired or with only a few darker hairs on mesopleuron, with predominantly pale hairs on tergite 1 and fewer dark ones on its sides basally; body above and below mostly pale or white-haired, the abdomen above with much fewer dark scaling in addition to white and yellowish ones; red on face more extensive and red hind margins of tergites

and sternites or even sides of abdomen more broadly and more extensively so; legs paler, mostly pale-scaled, with fewer dark scales; infuscated parts in wings more yellowish or reddish brown and squamae with a pale fringe. 36

- (b) Pleural parts, including mesopleural and metapleural tufts, either entirely or predominantly dark or black-haired or with distinctly more numerous dark hairs, with predominantly or entirely conspicuous black hairs across tergite 1 and only a small patch of yellowish hair on extreme sides basally; body above and below with more and much dark scaling in addition to white or pale bands on abdomen above; red on face less extensive and red hind margins of tergites and sternites and red on sides of abdomen narrower or more reduced; legs darker, appearing black, with predominantly or entirely black scaling; infuscated parts of wings very dark blackish brown and squamae with a dark fringe. ♂ ♀ *melanozona* n. sp. (p. 755)
36. (a) Front femora with numerous spinules and front tibiae with distinct and conspicuous spicules; labella of proboscis narrower, more pointed; white bands across base of tergite 2 and across middle of 4 and 6 and across 7 very conspicuous, margined posteriorly with yellowish scaling; scaling on body below entirely and conspicuously white; a streak of more yellowish scales on each side of thorax above; wings with the infuscated parts more dull yellowish, the spots on cross veins larger, more conspicuous, and clear areas in apical part of enclosed submarginal cell, apical half of first posterior cell and especially in more than apical half of discoidal cell conspicuously clear and outstanding, appearing almost whitish; discoidal cell less acute and produced apically, broader subapically and without a stump from base of second posterior cell projecting into it. ♂ ♀ *spoliata* Bezz. (p. 747)
- (b) Front legs more slender, the front femora without stoutish spinules and front tibiae without any or with very feeble spicules; labella slightly broader, more rounded apically; white band across base of tergite 2 conspicuous, those across other tergites less intense and the white scales themselves forming hind border of tergites; scaling on body below less intensely white, with yellowish ones especially on pleurae and parts of venter; a paler, more conspicuous streak on each side of thorax; wings more reddish or cinnamon-brownish, sometimes tending to be uniform throughout, the spots fainter, smaller, and clearer parts in discoidal and marginal cells not tending to contrast; discoidal cell more produced, more acute apically, less broad subapically, but with a constant tendency for a stump to project into it from base of second posterior cell. ♂ ♀ *rubicunda* n. sp. (p. 756)
37. (a) Style of antennal joint 3 distinctly visible separately, longer, quite or nearly as long as antennal joint 2; middle and front femora with fewer spines, the front ones with only 1 or 2 on side apically and middle ones with only about 2 or 3 in front and 3-4 or 5 behind, and hind femora with only one row of spines, the spicules on front tibiae very poorly developed or absent; bands of white scaling across tergites with that on sides of tergite 3 relatively longer and those on rest of tergites more across their bases; small tuft of dense hair-like scales in front and just below wing-bases white; clear or clearer areas apically in marginal and enclosed submarginal cells larger, more extensive, and base or basal half of first posterior cell distinctly less infuscated. ♂ ♀ *zonata* Hesse (p. 752)
- (b) Style not or scarcely visible separately, minute or vestigial, not as long as antennal joint 2 and antennal joint 3 appearing more truncate apically; femora with more spines, the front ones with several or numerous spinules on outer sides or apically, the middle and hind ones with two rows of spines below, and the spicules on front tibiae more developed and conspicuous; white scales on sides of tergite 3 shorter, patch-like or quadrate and white ones across other tergites arranged more across hind margins; small tuft of hair-like scales in front and below wing-bases darker; clearer areas apically in marginal and enclosed submarginal cells usually less extensive, and basal half or even slightly more of first posterior cell darker or more infuscated. 38
38. (a) Pleural parts predominantly or entirely pale-haired, without any or with much fewer dark hairs on humeral part and mesopleuron; hairs across tergite 1 entirely or mostly straw-coloured yellowish or whitish and much fewer dark hairs on sides, the hairs

- on venter mostly pale; body above and below with more pale scaling; wings (pl. ii, fig. 2) more obviously dimidiate, the apical and hinder clearer parts more vitreous or hyaline and the spots darker, more conspicuous, the first posterior cell usually acute and more often closed apically, and the discoidal cell less produced apically, its apical vein thus shorter. . . . ♂ ♀ *aridicola* n. sp. (p. 754)
- (b) Pleural parts, especially mesopleuron, prosternal part and metapleural tuft, with more black hairs or even entirely black-haired, with more black hairs on humeral part and also with more or more conspicuous black hairs across hind part of collar above; hairs across tergite 1 either entirely black or with more black ones apically on extreme sides; body above with more black scaling in addition to pale ones; wings with the clearer or less infuscated apical and hinder parts more greyish or even smoky greyish, the spots fainter, the first posterior cell either broadly open or if much narrowed still open apically, and the discoidal cell distinctly more produced apically, its apical vein thus a little longer. . . . 39
39. (a) Mesopleural tuft and mesopleuron and prosternal part with fewer black hairs and more pale ones; tergite 1 with entirely or predominantly black hairs, only those on extreme sides basally pale and black hairs on sides of abdomen denser and longer; scaling on abdomen above with more black ones in addition to pale ones and white band across base of tergite 2 narrower; scaling on venter entirely white; abdomen entirely black above; wings darker, more dark blackish brown anteriorly and smoky greyish hyaline apically and posteriorly, the veins darker; first posterior cell more narrowed apically; squamae dark-fringed. . . . ♂ ♀ var. of *polysticta* n. sp. (p. 746)
- (b) Pleural parts entirely black-haired or mesopleuron and prosternal parts with fewer pale hairs; tergite 1 with predominantly pale hairs and fewer dark ones apically on extreme sides and black hairs on sides of abdomen shorter; scaling on abdomen above with fewer dark ones, the white band across tergite 2 slightly broader; scaling on venter usually with some dark scales; hind margins of tergites and even sides of 2 and 3 distinctly reddish even if only narrowly; wings more reddish brown anteriorly, more greyish hyaline apically and posteriorly, the veins reddish; first posterior cell distinctly more broadly open apically; squamae pale-fringed. . . . ♀ *hemiphaea* n. sp. (p. 754)
40. (a) Wings shorter in relation to body, more uniformly infuscated dark blackish brown throughout, with a violaceous tint and with the clearer areas or streaks in the cells faint, the infuscations along the veins thus not conspicuous and spots not conspicuously evident; head in front entirely black or very dark piceous throughout; scutellum entirely dark or with only very obscure and narrowish piceous hind margins, without any reddish on sides of tergites 2 and 3; legs darker, very dark blackish red; style of third antennal joint usually tending to be shorter, less than or not much more than half length of joint; hairs on pleurae, in metapleural tuft and on venter predominantly black, with fewer yellowish or brownish gleaming ones in propleural and mesopleural tufts. . . . ♂ ♀ *umbrosa* Lw. (p. 758)
- (b) Wings much longer in relation to body, not uniformly infuscated, the anterior and basal parts dark brownish or chocolate-brownish, without a violaceous tint, and the apical and hinder parts clearer, more greyish hyaline, with the darker infuscations along veins thus outstanding and the spots on cross veins also more obvious; head in front not always entirely dark, front half of frons, interantennal space and basal part of face dark blackish red or brownish red; greater part of scutellum and postalar calli ferruginous or reddish; hind margins of tergites and especially those of sternites, or even entire venter, more broadly reddish or dark reddish brown, the sides of tergites 2 and 3 or even part of 4 fairly broadly reddish or with some reddish; legs paler, more sienna-brownish and if darker other characters do not differ; style usually tending to be longer, more than or much more than half length of antennal joint 3; hairs on propleurae, in upper part of mesopleural tuft and often also in anterior part of metapleural tuft and sometimes on basal part of venter more yellowish or golden or with more yellowish- gleaming ones intermixed and if entirely dark wings not violaceous. . . . 41
41. (a) Hairs in upper part of mesopleural tuft, in propleural tuft, anterior part of metapleural tuft and often on basal part of venter more yellowish or golden; sides of tergites 2

and 3 or even part of 4, the hind margins of tergites and especially the sternites or even entire venter more broadly or more extensively reddish; legs paler, more yellowish, with more or at least some yellowish scaling; abdomen above also with some dull yellowish scales in addition to white bands and black scaling.

♂ ♀ *nephoneura* Hesse (p. 760)

- (b) Hairs in upper part of mesopleural tuft with fewer yellowish ones, the propleural tuft, hairs on pleurae and entire metapleural tuft and hairs on entire venter black; sides of tergites 2 and 3 and hind margins of tergites less extensively reddish; legs darker, entirely dark or black-scaled; abdomen above, apart from white bands, entirely or predominantly dark or black-scaled. . . . ♂ ♀ var. of *nephoneura* Hesse (p. 762)
42. (a) Pattern in wings, if present, variable, either uniformly infuscated, dimidiately infuscated or with spots, clouds or bands, rarely strikingly infuscated blackish with a contrasting clear or whitish apex or with a clear cut, narrowish and oblique, *Litorrhynchus*-like, clear area in middle; axillary lobe normally developed, normally rounded behind, distinctly narrower, usually less than $1\frac{1}{2}$ times or much less than twice width of anal cell and, if twice as wide, not subangularly rounded near base or at middle behind, the base of wings thus not appearing truncate or subtruncate; antennal joint 3 longer, more elongate-conical, rarely short, shortly conical or bulb-shaped and its style usually relatively shorter and, if long, rarely as long as or longer than joint; frontal depression usually feebler, not transversely evident. . . . 43
- (b) Pattern in wings if present very striking, either *Litorrhynchus*-like, with clear cut whitish or clear apex and a clear-cut oblique middle area, or intensely dark or black with clear apex, or, if mostly clear, with a *Bombylius*- or *Anthrax*-like dark basal and costal infuscation; axillary lobe usually markedly broad, at broadest part usually at least $1\frac{1}{2}$ times to twice as broad as anal cell, very subangularly dilated or rounded at about middle or near base behind, the wings thus appearing more distinctly truncate or subtruncate at base; antennal joint 3 usually shorter, more shortly conical or even bulb-shaped, its style usually long, slender, longer or much longer than joint and, if joint is more elongate conical, axillary lobe is subangularly dilated; frontal depression usually more transversely foveate. . . . 201
43. (a) First posterior cell closed, ending fairly bluntly and provided with a fairly long stalk; base and costal or anterior part of wings infuscated and the cross veins and bifurcations in hyaline part with distinct or conspicuous rounded spots; abdomen above with broader, flattened, more cuneiform scales, those on last three tergites arranged in transverse rows of alternate white and black spots. . . . 45 (South African representatives of the *Trinaria*-group (p. 764)
- (b) First posterior cell open, rarely closed apically and, if acute or closed apically, a distinct and longish stalk is absent, and, if infuscated in basal and costal part and also spotted in clear part, first posterior cell is not closed and stalked; abdomen above usually with distinctly narrower, bat-shaped, lanceolate or hair-like scales and these on last three segments arranged in continuous bands of pale or whitish ones or at least not in rows of alternate white and black patches. . . . 44
44. (a) Most or all of the following venational characters present: vein between discoidal and second posterior cells much contorted, more distinctly S-shaped, very much more than half length of base of third posterior cell, sometimes only a little shorter than latter and usually longer or much longer than anterior apical vein of second basal cell, usually parallel or subparallel to hind margin of wing; apical part of discoidal cell usually longer, more produced and basal part of second posterior cell opposite it also equally produced and these two parts together more S-shaped; second posterior cell with its base and sides more sinuous or contorted or S-curved. . . . 46 (so-called *Defilippia*-group) (p. 767)
- (b) Most of the above venational characters not present: vein between discoidal and second posterior cells only slightly or not S-shaped, straight or almost straight, or only feebly S-curved, shorter, usually less than half or much less than half length of base of third posterior cell and usually subequal in length or more often distinctly shorter than apical vein of second basal cell and usually inclined to or oblique to hind margin of wings; apical part of discoidal cell and basal part of second posterior cell distinctly

less produced, more obtuse and these parts together more Z-shaped or more sub-rectangular; second posterior cell tending to be more rhomboidal, its base and sides straighter and distinctly less sinuous or contorted.

102 (*Exoprosopa*-group) (p. 835)

45. (a) Blackish infuscation in wings in ♀ extending to spot on submarginal cross vein; clear areas in apical part of second basal cell and base of discoidal cell less extensive or even much reduced or absent; spots in hyaline part, especially those at bases of third and fourth posterior cells relatively much larger, the latter more often confluent with basal and costal infuscation and with usually only one large spot at base of second posterior cell (infuscation in ♂ less extensive, more than apical half or even greater part of marginal cell being clear and spots on cross veins also smaller than in ♀); frons and at least discal part of face dark; streak of longish scales on each side of thorax less conspicuous, less white, more greyish; hairs on sides of abdomen longer and denser, those apically on sides of tergite 1 black, and those on venter in both sexes mainly dark or black; smaller forms, about 6–12 mm. long with a wing-length of about $6\frac{1}{2}$ – $12\frac{1}{2}$ mm. ♂ ♀ *mira* Hesse (and varieties) (p. 765)
- (b) Costal infuscation in wings in ♀ falling short of spot on submarginal cross vein; clear areas in apical part of second basal cell and base of discoidal cell more extensive like those of ♂ of *mira*, entire discoidal cell being clear; spots in hyaline part, especially those at bases of third and fourth posterior cells relatively much smaller, as in ♂ of *mira* the latter two spots not confluent with anterior infuscation, and with two spots at base of second posterior cell; front part of frons and face reddish or more extensively reddish; streak of longish scales on sides of thorax distinctly more conspicuous, denser, more whitish; hairs on sides of abdomen distinctly much shorter and sparser, those on sides of tergite 1 entirely whitish, and those at base of venter also whitish or with more white ones; slightly larger form, about $13\frac{1}{2}$ mm. long, with a wing-length of about 14 mm. ♀ *aphelosticta* n. sp. (p. 766)
46. (a) Wings either uniformly infuscated, or reticulate, or with extensive cloudiness and spots along veins, or extensively spotted, mottled or maculated, or with the baso-costal part infuscated and with spots or clouds on cross veins and bifurcations, or sometimes also near ends of apical and posterior veins in the less infuscated or clearer parts. 47
- (b) Wings not so infuscated, not extensively spotted or maculate, but either dimidiately infuscated, without any spots in clearer apical and posterior parts or with band-like extensions towards hind margin from anterior costal infuscation or more often with a band-like extension from anterior costal infuscation across apical part of discoidal cell which may or may not reach the hind margin, and with an isolated spot or cloud at base of second posterior cell, but without numerous spots in clear apical and posterior parts. 72
47. (a) Wings in addition to spots more uniformly infuscated throughout or appearing reticulate, due to more extensive or broader infusions and cloudiness along all or most of the veins, leaving only the middle parts of the apical and posterior cells clearer. 48
- (b) Wings not uniformly infuscated and, apart from the spots or clouds on cross veins and bifurcations, with the apical and posterior parts distinctly more extensively clear or hyaline or at least less infuscated, without or scarcely any broad, extensive and continuous infusions along posterior veins and, if infuscations are indicated, these are usually in form of isolated spots or infusions, with the wings on the whole appearing more spotted. 55
48. (a) Wings uniformly infuscated reddish brownish or chocolate-brownish throughout, only the apical two submarginal cells sometimes appearing slightly less infuscated, with darker rounded well-developed spots on cross veins and bifurcations; whitish praediscoidal spot small; hairs on sides of abdomen relatively shorter and hairs on sides of tergite 1 entirely pale or yellowish whitish; pale scaling on abdomen above more yellowish or yellowish whitish. ♂ ♀ *neurospila* Bezz. (p. 770)
- (b) Wings not uniformly infuscated throughout, the apical two submarginal cells, the middle apical part of discoidal cell and middle parts of posterior cells clearer to a

variable extent, or the centres of most of the cells less infuscated, the wings appearing more reticulate, with the darker spots on cross veins and bifurcations more diffuse or cloudy, tending to be less rounded or well defined; whitish praediscoidal spot larger; hairs on sides of abdomen relatively or distinctly longer and denser, the pale ones on sides of tergite 1 with some or numerous dark ones apically; pale scaling on abdomen above usually also with some whiter ones across some of the tergites. . . . 49

49. (a) Wings appearing slightly more uniformly infuscated, only apical two submarginal cells almost entirely clearer or less infuscated, the clearer centres in discoidal and posterior cells less extensive, the darker spot-like infuscations on cross veins and bifurcations less evident or scarcely indicated; apical part of discoidal cell distinctly more obtuse, less produced and its apical vein only slightly S-shaped; base of second posterior cell much less produced, the cell relatively longer; more than front half of frons and entire face yellowish; sides of abdomen broadly reddish and venter entirely yellowish or reddish; pleural parts and venter yellowish-haired; bands of pale scaling on abdomen above not bisinuate. . . . ♂ ♀ *corvinoides* n. sp. (p. 772)
- (b) Wings appearing more reticulate, the clearer centres in apical, posterior and discoidal cells more extensive, more conspicuous, the darker spots or clouds larger, more conspicuous; apical part of discoidal cell and base of second posterior cell distinctly more produced and vein between them distinctly more S-curved; second posterior cell shorter; frons either entirely dark or with less red and face with some black discally or laterally or entirely dark; abdomen without any or with less red on sides and if with much red venter has dark spots; pleural parts with some or numerous dark hairs, especially on mesopleuron and in metapleural tuft; pale bands on abdomen above usually bisinuate. . . . 50
50. (a) Entire frons and greater part of face, posterior calli, scutellum and abdomen above black; body below also darker; legs darker or darker reddish or blackish brown; hair on pleurae and body below entirely black; bands of pale scaling across tergites, which are more evident on sides, more conspicuously white; scaling on body below and on legs dark or black; wings with very dark blackish brown or black infuscation and spots; second vein very sinuous apically; first posterior cell more broadly open apically. . . . ♂ ♀ *nigrovenosa* Bezz. (p. 771)
- (b) Not all these parts entirely black, face usually with much or extensive reddish, greater part or posterior part of scutellum reddish and if entirely dark other characters do not differ; sides of abdomen with some red or sometimes broadly and extensively reddish and hind margins of tergites sometimes reddish; body below paler, often more yellowish; legs also paler yellowish; hair on pleural parts with some or numerous yellowish ones, especially in prosternal, mesopleural and metapleural tufts, and venter basally also with some pale hairs; scaling on body below and legs not entirely black, that on venter more often in form of dark patches on sides and along centre separated by pale scaling; pale bands across tergites more greyish or even more yellowish and, if white, other characters do not differ; wings usually less blackish and, if first posterior cell is broadly open and second vein very sinuous, body below is not entirely black-haired. . . . 51
51. (a) Greater part of face and entire or greater part of scutellum black; sides of abdomen without any red or with only a small reddish spot on sides of tergites 2 and 3 and hind margins of tergites not or only very narrowly reddish; venter with more reduced reddish hind margins; wings with darker, more blackish infuscation, the infuscation in anal and axillary cells more extensive or imperceptibly becoming slightly less dark apically, the spots more rounded, relatively larger, more defined, and infuscations along posterior veins usually narrower, less defined, or if extensive, anal and axillary cells more infuscated; clear spot in discoidal cell less contrasting due to more extensive clear parts in posterior cells or it is smaller; praediscoidal spot smaller; smaller forms. . . . 52
- (b) Face with some or more extensive reddish and greater part of or almost entire scutellum constantly reddish; sides of abdomen more extensively or even very broadly reddish and hind margins of tergites broadly reddish; venter either predominantly reddish or with much broader red hind margins; wings more brownish or coffee-brownish, the

infuscation in anal and axillary cells often tending to be more sharply marked off from apical clearer parts, the spots more diffuse or cloudy, and infuscations along posterior veins more extensive, more defined; clear spot in discoidal cell more conspicuous, usually larger and more contrasting; praediscoidal spot large; slightly larger forms. 53

52. (a) Sides or anterior margin of face broader reddish; greater part or entire scutellum black; prosternal and pleural parts with more black hairs and greater part of venter black-haired; pale scaling on abdomen above composed mainly of whitish ones, the dark scaling however more extensive; pale scaling on venter more yellowish or even ochreous; first posterior cell more broadly open apically and more extensively clear in apical part; posterior veins less broadly bordered with fuscous, this part of wing appearing clearer; vein between apical two submarginal cells not infuscated along its course or with less cloudiness or with a smaller spot. *♂ ♀ caffrariana* n. sp. (p. 772)

- (b) Greater part of face dark or black, or less extensively reddish or only very narrow anterior margin reddish; at least hinder half of scutellum reddish; prosternal and pleural parts with fewer dark hairs and venter pale-haired on at least basal half; pale scaling on abdomen above composed of whitish, greyish whitish and yellowish ones, the dark scales fewer; pale scaling on venter whitish or white; first posterior cell tending to be narrower apically and also more tinged apically; posterior veins more broadly bordered with fuscous, this part thus less clear; vein between apical two submarginal cells distinctly more infuscated, with more cloudiness or a larger spot (pl. ii, fig. 4). *♂ ♀ guillarmodi* n. sp. (p. 776)

53. (a) Scutellum entirely, or excepting only narrow black base, reddish; sides of abdomen even in ♀♀ very broadly reddish; legs paler yellowish; hair on prosternal part and on pleurae usually with fewer dark ones; infuscation in anal cell and axillary lobe tending to be more sharply marked off from clearer apical parts. 54

- (b) Scutellum with a broader dark base; sides of abdomen slightly less extensively reddish; legs darker, due to darker scaling; hair on prosternal and pleural parts with more dark ones; infuscation in anal and axillary cells scarcely or only imperceptibly becoming less infuscated apically. ♀ very dark form of *leucothyrida* n. sp. (p. 774)

54. (a) Face entirely or predominantly yellowish (even in ♂) or with only a small diffuse black spot or less extensive black on sides. *♂ ♀ leucothyrida* n. sp. (p. 774)

- (b) Greater discal part and sides of face black, only sides of frons in front and base of face reddish. ♂ form of *leucothyrida* n. sp. (p. 774)

55. (a) Front legs markedly shortish and stout, the front femora stoutish, usually distinctly spinulate, only about or distinctly less than $1\frac{1}{2}$ times length of front coxae, their tibiae also stoutish, usually with some spicules, sometimes conspicuously spiculate, the front tarsi short, stoutish, only about or only a little longer than half length of front tibiae; style of third antennal joint very short, minute or vestigial, and if discernible separately it is scarcely as long as, but more often shorter than antennal joint 2. 56

- (b) Front legs on the whole more slender, relatively longer, the front femora more slender, usually not spinulate and more than $1\frac{1}{2}$ times length of front coxae, their tibiae slender, smooth, non-spinulate or without discernible spicules, the front tarsi distinctly longer, more slender, considerably more than half length of front tibiae; style distinctly longer, always discernible separately, not shorter, but usually longer than or very much longer than antennal joint 2. 61

56. (a) Wings with infuscations, clouds or spots along some or most of the posterior veins or near ends of these veins or cells, the wings thus not so dimidiately divided into an infuscated and spotted anterior part and a clear or clearer unspotted apical and hinder part. 57

- (b) Wings without several infuscations, clouds or spots along or near ends of the posterior veins or cells, the wings thus more dimidiately divided into an infuscated basal and costal part bounded by spots on the cross veins and bifurcations and a clear or clearer unspotted or less-spotted apical and hinder part. 58

57. (a) Frons and face and greater part of or two-thirds of scutellum black; sides of abdomen black and hind margins of tergites black or only very narrowly reddish posteriorly; only narrow hind margins of sternites reddish and legs more dark brown; pleural parts with more black hairs; pale scaling on abdomen above mostly whitish; wings more extensively clouded, the infuscation at base either fading out gradually towards apices of anal and axillary cells, not so well marked off in basal halves of these cells, without a conspicuous cloud or large spot at apex of anal cell, with smaller clear areas at apices of marginal and enclosed submarginal cells and in discoidal cell, and without a very characteristic, broad, recurved or hook-like extension of infuscation extending posteriorly over apical part of discoidal cell and down vein between second and third posterior cells. some ♂♂ and ♀♀ of *polysticta* n. sp. (p. 746)
- (b) Sides of frons and face, more than half or at least half of scutellum, spots on sides of tergites 2 and 3, fairly broadish hind margins of tergites and very broad hind margins of sternites yellowish or reddish; legs much paler, more yellowish; pleural parts without any or with much fewer dark hairs; abdomen above with much yellowish scaling in addition to white ones; wings with more extensive clear areas apically and posteriorly, the clear areas in apical parts of marginal and enclosed submarginal cells and in discoidal cell larger, more extensive, with a large conspicuous spot near end of anal cell, and with a broad, characteristic, recurved or hook-like extension of anterior infuscation extending posteriorly across apical part of discoidal cell and down between second and third posterior cells. some ♂♂ and ♀♀ of *recurrens* Lw. (p. 741)
58. (a) Frons and entire face or greater part of face black or dark; abdomen entirely black above or hind margins of tergites only very narrowly reddish, and venter mostly dark or with narrower reddish hind margins; legs darker, dark reddish brown; apical part of discoidal cell and basal part of second posterior cell distinctly more produced, the vein between them more S-shaped, more subparallel to hind margin; second posterior cell more contorted, less subparallel-sided; second vein distinctly more recurved apically; first posterior cell more narrowed apically, more often acute and closed apically; scaling on body below, especially on pleurae, sparser, not contrastingly snow-whitish; front legs relatively longer, less stout, the spicules on tibiae feebly developed. 59
- (b) Front of frons or sides of frons and base and sides of face or sometimes even greater part of face or genal parts of face reddish; abdomen with the sides or sides of tergites 2 and 3 extensively reddish, and with hind margins of tergites and sternites more broadly or very broadly reddish; legs much paler, more pale yellowish; apical part of discoidal cell and basal part of second posterior cell distinctly less produced, the vein between them less or only feebly S-shaped, more oblique to hind border; second posterior cell distinctly more subparallel-sided; second vein much less recurved apically; first posterior cell less narrowed apically, usually more broadly open; scaling on body below, especially on pleurae and coxae, much denser, very dense and contrastingly cretaceous white; front legs markedly short and stout, the spicules on front tibiae well developed. 60
59. (a) Style of antennal joint 3 distinctly discernible separately, longer, quite or nearly as long as joint 2; middle and front femora with fewer spines and hind ones with only one row of spines below, and the spicules on front tibiae very poorly developed; bands of white scaling across tergites with that on sides of tergite 3 relatively longer and those across rest more across bases of tergites; small tuft of dense hair-like scales in front and just below wing-bases white; clearer areas apically in marginal and enclosed submarginal cells larger, more extensive, and base or basal half of first posterior cell less infuscated. some ♂♂ and ♀♀ of *zonata* Hesse (p. 752)
- (b) Style minute or vestigial, not as long as antennal joint 2, antennal joint 3 appearing more truncate apically; femora with distinctly more spines, the middle and hind ones with two rows below, and the front tibiae with well-developed spicules; white scales on sides of tergite 3 shorter, patch-like or quadrate, and white ones across other tergites more across their hinder parts; small tuft below wing-bases darker; clearer parts

apically in marginal and enclosed submarginal cells usually less extensive, and basal half or more of first posterior cell darker or more infuscated.

some ♂♂ and ♀♀ of *aridicola* n. sp. (p. 754)

60. (a) Apical veins in wing with fewer, only one or without any spots and apical part of marginal cell in both sexes more extensively clear and usually without or with an even more indistinct spot at end of third vein; body usually with more yellowish, with slightly broader red hind margins to tergites and sternites, more extensive red on sides of abdomen or sides of tergites 2 and 3, and with a relatively smaller black infusion on face in front. ♂ ♀ *capensis* (Wied.) (p. 768)
- (b) Apical veins usually with more spots or small clouds and apical part of marginal cell in ♂ more infuscated and with a more constant faint spot at end of third vein; body usually darker, with narrower red hind margins to tergites and sternites, less extensive red on sides of tergites 2 and 3, and discal front part of face more blackened. ♂ ♀ var. of *capensis* (Wied.) (p. 768)
61. (a) Wings more or less dimidiately divided into an infuscated basal and anterior half, bounded by spots on the cross veins and bifurcations and a clear unspotted apical and hinder half in which there are no infuscations along veins or spots near ends of veins or cells; apical part of discoidal cell and basal part of second posterior cell distinctly less produced and vein between them shorter, less S-shaped, more oblique to hind margin of wings; second posterior cell slightly less contorted; face relatively longer, only a little shorter than postantennal distance to ocellar tubercle; style of third antennal joint short, not or scarcely much longer than antennal joint 2, and antennal joint 3 itself very conical, rapidly narrowed apically. 62
- (b) Infuscation in wings not so dimidiately divided and, apart from basal and anterior infuscation and the usual spots or clouds on cross veins, also with infusions along apical and posterior veins to a variable extent or with clouds or spots near ends of posterior veins or cells; apical part of discoidal cell and basal part of second posterior cell distinctly more produced, the vein between them longer, more S-shaped, more sub-parallel to hind margin; second posterior cell usually more contorted or its sides more S-curved; face distinctly shorter, considerably shorter than postantennal distance to ocellar tubercle; style longer, much or very much longer than antennal joint 2, and third joint usually more gradually tapering or, if rapidly tapering, it is more bulb-shaped. 63
62. (a) Legs darker, very dark blackish brown or black; face with less red on sides below antennae and around and between antennal bases; hind margins of tergites not or only obscurely reddish, sides of 2 and 3 not or only feebly reddish, and hind margins of sternites more narrowly reddish; apical vein of discoidal cell slightly less S-shaped. ♂ ♀ *porrectella* n. sp. (p. 777)
- (b) Legs paler, very pale yellowish; face with more extensive red on sides below antennae and around and between their bases; hind margins of tergites more broadly red, the sides of 2 and 3 more extensively reddish, and hind margins of sternites very broadly reddish; apical vein of discoidal cell slightly more S-curved. ♂ ♀ var. of *porrectella* n. sp. (p. 778)
63. (a) Posterior veins in wings mostly faintly bordered with fuscous to a variable extent and with no distinct and well-defined spots near their ends, the anal cell without a distinct cloud or spot near its end, and vein between apical two submarginal cells also without a spot or spots near its end. 64
- (b) Posterior veins or some of them at least with distinct fuscous borders even if only faint, with distinct, even if only small, diffuse spots or clouds near their ends, the anal cell usually with a distinct spot or cloud near its end and, if without such a spot, some of the other posterior veins at least with an indication of spots and vein between apical two submarginal cells with spot-like infuscations. 65
64. (a) Frons on sides in front, greater part of face, entire scutellum, sides of tergites 2 and 3 broadly, hind margins of tergites, greater part of venter and legs pale reddish or yellowish red; hair on meso-, hypo- and pteropleurae with fewer dark ones; pale scaling on abdomen above composed of whitish, but mostly yellowish, ones; wings

with the praediscoidal spot large, with two clearish spots apically in marginal cell more conspicuous and a more contrasting clear area in discoidal cell, and the infuscation in basal halves of anal cell and axillary lobe more sharply marked off from clear parts. ♂ ♀ form of *leucothyrida* n. sp. (p. 774)

- (b) Frons in front and medial part and sides of face black to a variable extent, only the hinder part or border of scutellum narrowly or obscurely reddish or not at all, the red spots on sides of tergites 2 and 3 much reduced or absent, the hind margins of tergites not or only narrowly reddish, and the legs darker, more blackish brown; hair on pleurae with distinctly more dark ones; pale scaling on abdomen above composed mainly of whitish or greyish white ones; wings with a smaller praediscoidal spot, with only one clear area at apex of marginal cell and with the basal infuscation in anal and axillary cells imperceptibly becoming less dark towards apex. ♂ ♀ form of *caffrariana* n. sp. (p. 772)

65. (a) Antennal joint 3 much longer, elongate-conical, its style relatively much shorter, not more than or much less than half length of joint; face in profile slightly less curved; face even if dark with more extensive red or even entirely reddish, the entire or greater part of scutellum, sides of tergites 2 and 3 broadly, or even entire sides of abdomen and the hind margins of tergites and sternites more broadly reddish; hairs on pleural parts with fewer or much fewer black ones and bands of pale scaling on abdomen above arranged more bisinuate; wings less maculated, clouded or spotted in appearance, the spots or clouds near ends of apical and posterior veins tending to be smaller, the intervening clear areas or spots more extensive and praediscoidal spot larger. 66

- (b) Antennal joint 3 much shorter, onion-shaped or bulb-shaped, its style relatively much longer, more than half or subequal in length to, or even longer than, joint; face in profile tending to be slightly more convex; face usually mainly or entirely black, with the reddish parts in front and on sides less extensive, the entire or greater part of scutellum black, the abdomen above either entirely black or the reddish on sides of tergites 2 and 3 if indicated scarcely discernible, much reduced and reddish hind margins very much narrower or obscure; hairs on pleural parts with more numerous intermixed black ones and the bands of pale scaling on abdomen above less arranged bisinuate; wings appearing more maculated, clouded or spotted, the spots or clouds near ends of apical and posterior veins tending to be longer or more coalescent, the intervening clear parts in wings less extensive, and the praediscoidal spot smaller. 71

66. (a) Posterior veins or some of them with faint fuscous borders in addition to slightly smaller clouds or spot-like infuscations near their ends, the spot at end of anal cell wanting, smaller, or less broadly confluent with spots at bases of third and fourth posterior cells, and the first posterior cell with a less well-defined clear area. 67

- (b) Posterior veins without distinct fuscous borders, but with well-defined, rounded, large or small spots near their ends, the spot at end of anal cell large, conspicuous and broadly confluent with spots at bases of third and fourth posterior cells, and first posterior cell with a well-defined or clear-cut area apically. 68

67. (a) Face reddish or yellowish only at apex, on extreme sides and narrowly on genal part; apical half of scutellum reddish and reddish on sides of tergites 2 and 3 and across hind margins of tergites slightly less extensive; legs darker reddish, with darker scaling above; wings with the infuscation in anal and axillary cells more imperceptibly grading into less infuscated apical parts, without a distinct spot at end of anal cell, with fainter or ill-defined spots near ends of some other posterior veins and usually with only one clear spot apically in marginal cell; mesopleuron with more dark hairs; face in profile tending to be slightly more convex discally, less sharply pointed; style of third antennal joint relatively shorter, much less than half length of joint. ♂ ♀ *karoana* n. sp. (p. 779)

- (b) Sides of frons in front and face more extensively reddish, the entire face often being reddish; more than apical half or greater part of scutellum and broad sides of tergites 2 and 3 or 4, or even entire sides of abdomen and broader hind margins of tergites and sternites or even entire venter and lower parts of pleurae reddish; legs

- paler yellowish, more pale-scaled; wings with the infuscation in anal and axillary cells more sharply marked off from clear apical parts, with a more constant and distinct spot at end of anal cell, with more defined or more distinct spots near ends of some other posterior veins, and usually with two clear spots in apical part of marginal cell; mesopleuron with fewer intermixed dark hairs; face in profile straighter, more sharply pointed; style relatively longer, more often nearly or quite half length of antennal joint 3. ♂ ♀ *maculifera* Bezz. (p. 778)
68. (a) Face entirely yellow or with more extensive yellow; legs paler, pale yellowish, mostly yellow-scaled; hairs on pro-, meso- and sternopleural parts without any or with only a very few intermixed dark ones; spot at end of vein between apical two submarginal cells smaller or absent. ♂ ♀ *connivens* Bezz. (p. 780)
- (b) Face mostly black discally or with less extensive yellow; legs darker, with much dark scaling above or apically, especially on hind ones; hairs on these pleural parts with more numerous dark or black intermixed ones; spot near end of vein between apical two submarginal cells larger, more conspicuous. 69
69. (a) Wings with the apical vein of discoidal cell slightly shorter, less deeply S-curved, the apical part of discoidal cell and basal part of second posterior cells less produced, the large spot on cross vein at base of normal second submarginal cell very broadly confluent with infuscation in first posterior cell and also with spot near end of first posterior cell; large spot across apical parts of anal and axillary cells larger, more transverse, extending conspicuously into fourth posterior cell; spots near ends of middle two posterior veins usually larger and sometimes confluent with large spot at apex of discoidal cell. ♂ ♀ form of *connivens* Bezz. (p. 781)
- (b) Wings with the apical vein of discoidal cell either long and deeply S-curved or if not very long it is S-curved and continuous with a slight subangular projection of discoidal cell into third posterior cell, with the apical part of discoidal cell and basal part of second posterior cell slightly more produced and elongate, the spot on cross vein at base of normal second submarginal cell isolated or only narrowly confluent with infuscation in first posterior cell and also not broadly confluent with spot near end of first posterior cell; spot across apical parts of anal and axillary cells smaller, less transverse, scarcely or not extending conspicuously into fourth posterior cell; spots near ends of middle two posterior veins smaller or very small, usually not confluent with large spot or two spots at apex of discoidal cell. 70
70. (a) Apical vein of discoidal cell longer, more deeply S-curved, the apical part of discoidal cell and base of second posterior cell distinctly more produced; vein between discoidal and third posterior cells not subangularly bent into the latter cell near base of second posterior cell; spot near apex of anal and axillary cells not extending into fourth posterior cell; spots near ends of middle three posterior veins smaller; squamae dark-fringed; pleural parts and mesopleural tuft with more numerous black hairs; legs darker, the front ones longer, more slender, the front tarsi also considerably longer than half length of front tibiae; antennal joint 3 stouter; face relatively broader. ♀ *campestris* n. sp. (p. 781)
- (b) Apical vein of discoidal cell shorter, not so deeply S-curved, the apical part of discoidal cell and base of second posterior cell less produced; vein between discoidal and third posterior cells subangularly bent into the latter cell near base of second posterior cell; spot near end of anal and axillary cells extending slightly into fourth posterior cell; spots near ends of other posterior veins larger; squamae pale-fringed; pleural parts, especially mesopleural tuft, with much fewer dark hairs; legs paler basally, the front ones relatively shorter and stouter, the front tarsi only a little longer than half length of front tibiae; antennal joint 3 more slender apically; face relatively narrower. ♀ form of *connivens* Bezz. (p. 781)
71. (a) Spots or clouds in posterior half or hinder part of wings larger, more contiguous or even confluent and posterior veins often also with fuscous borders; large spot at end of anal and axillary cells broadly confluent with main antero-basal infuscation extending across bases of third and fourth posterior cells; clear spots between the spots or clouds in hinder part of wings distinctly less extensive and the wings thus appearing darker, more mottled or clouded; pleural parts with more black hairs

intermixed with the yellowish ones; anterior margin and sides below of face sometimes less extensively yellowish; legs sometimes also slightly darker.

♂ ♀ form of *maculosa* (Wied.) (p. 782)

- (b) Spots in posterior half or hinder part of wings smaller, more separated, those near ends of posterior veins more isolated, not confluent with large spots on cross veins, the posterior veins without fuscous borders; spot at end of anal and axillary cells not, scarcely, or less broadly confluent with main antero-basal infuscation; clear spots separating the dark spots in hinder half of wings distinctly more extensive and the wings thus appearing more spotted; pleural parts with fewer intermixed black hairs; anterior part of face and its sides below sometimes a little broader yellowish; legs tending to be paler yellowish. . . . ♂ ♀ *maculosa* (Wied.) (p. 782)
72. (a) Wings with a characteristic and distinctive pattern, similar in both sexes, consisting of a pale yellowish brown base and two cross bands separated by hyaline areas, the broad middle parts or basal halves of second basal and anal cells and greater part, basal half or middle part of axillary lobe, the middle part of discoidal cell and more or less irregularly and broadly across to hind border and the entire apical third or fourth of wings being hyaline or clearer; head in front with relatively much sparser hairs and face in front with much shorter ones, those on frons in front and face, excepting at apex, sometimes pale or, if dark ones are present, they are rendered less obvious by markedly dense, pale or white scaling on head; scaling on body below markedly dense, either strikingly snow-white or entirely whitish or pale; black hairs on sides of abdomen on the whole distinctly shorter, sparser, usually less dense. . . . 73
- (b) Wings with a different pattern, the middle parts of second basal and anal cells never broadly hyaline and the infuscated part not resolved into two cross bands, the wings either more or less dimidiately infuscated in both sexes, or only so in ♂♂, or with a backward extension of infuscation across apical part of discoidal cell to a variable extent in ♀♀, or with an isolated spot at apex of discoidal cell or base of second posterior cell, or with a *Litorrhynchus*-like clear middle indentation in both sexes which extends to fourth vein across discoidal cell; head in front with distinctly denser, longer and mostly black hair, and sparser, less dense pale scales and, if with very dense pale scaling and short pale hairs, wing-pattern conforms; scaling on body below not so conspicuously and markedly dense even if these are pale; black hairs on sides of abdomen longer, or longer and very much denser. . . . 76
73. (a) Wings with the bases of second basal and anal cells and of axillary lobe distinctly more infuscated, the cross bands slightly darker, the greater part of axillary lobe hyaline, the basal infuscated cross band distinctly narrower and therefore with less extensive infuscation in apical parts of second basal and anal cells and apex of axillary lobe, the second infuscated cross band also less extensive, not or scarcely reaching hind border in second and third posterior cells, usually with a more distinct or conspicuous spot at base of first apical cell; discoidal cell narrower, more parallel or sub-parallel-sided, its base blunter, more subtruncate, its apical part slightly longer, more produced, its apical vein also relatively longer, more regularly S-curved; second posterior cell more or much contorted, not sub-parallel-sided; scaling on body above more uniformly yellowish or ochreous to orange yellowish, without any or with much fewer dark or black ones; pale scaling on abdomen not so well marked off in form of contrasting whitish cross bands; scaling below dense, conspicuously snow-white, especially on pleurae and sides of face; head in front with relatively much sparser and on face much shorter hairs; femora darker or black, with more white scaling; entire frons and face not reddish, the basal half of frons usually black; antennal joint 3 relatively longer, its style relatively shorter. . . . 75
- (b) Wings with the bases of second basal and anal cells and axillary lobe not or scarcely infuscated, the cross bands slightly more yellowish, only the base or middle part of axillary lobe hyaline or whitish, the basal dark cross band distinctly broader, occupying apical parts of second basal and anal cells and axillary lobe much more extensively, the second dark cross band distinctly more extensive or broader, broadly reaching hind border or extending along posterior vein between second and third posterior cells, usually without or with only a feeble tinge at base of first apical cell; discoidal

cell broader or much broader, its inferior vein more rapidly bent outwards, its base more acute, its apical part less produced, its apical vein relatively shorter, less regularly S-curved; second posterior cell more parallel or sub-parallel-sided or rhomboidal; scaling on body above, especially abdomen, more creamy whitish or white, more concentrated into more conspicuous transverse bands across basal parts or basal halves of tergites, scales on sides being more whitish, with more or even dense dark scaling across hinder parts of tergites; scaling below not entirely white, that on sides of face and front part of pleurae more yellowish; head in front with denser hairs, but sparser scaling; femora paler, more yellowish, with more yellowish and less white scaling; entire or greater part of frons and sometimes also head behind eyes yellowish like face; antennal joint 3 usually relatively shorter, with shorter style. . . . 74

74. (a) Entire head, excepting vertex, and middle part below and dark eyes, yellowish reddish; sides of thorax above, especially posteriorly and base, entire scutellum, pleural parts and even in ♀ broad sides of tergites 2 and 3 and broad hind margins of tergites and sternites reddish; legs paler yellowish red; face slightly blunter, less conical; wings relatively shorter, broader, slightly more pointed apically, with more infuscation at bases of second basal, anal and axillary cells, the second dark cross band distinctly less extensive, narrower, occupying less of the apical parts of first and second posterior cells; discoidal cell relatively shorter, the middle cross vein at about middle or slightly beyond middle; transverse bands of pale scaling across bases of tergites from 3 to 6 less conspicuously broad and contrasting and usually with relatively fewer dark scales across hind margins of tergites. . . . ♂ ♀ *mozambica* n. sp. (p. 788)
- (b) Vertex and head behind eyes black, not yellowish; only postalar calli and not base of thorax reddish, narrow base of scutellum black and pleural parts, excepting sides of prosternal part, and entire or greater parts of sides of tergites 2 and 3 in ♀ at least dark or black and hind margins of tergites and sternites either not or only very narrowly or obscurely reddish; legs darker, more brownish or dark brownish; face slightly more pointed; wings markedly elongate, relatively narrower, their apices more rounded, the bases of second basal, anal and axillary cells clearer, the second dark cross band distinctly more extensive, broader, occupying much more of apical parts of first and second posterior cells, thus more broadly reaching hind border; discoidal cell relatively longer, narrower apically, the middle cross vein distinctly before middle; broadish transverse bands of pale or whitish scaling across tergites more conspicuous and contrasting with more and denser dark scaling across hind margins of tergites. . . . ♀ *didesma* n. sp. (p. 789)
75. (a) More than front half of frons and greater part of face, except a black discal spot of variable size, and usually first two antennal joints pale yellowish red or salmon pinkish, with more pale hairs and fewer dark ones and also more whitish scales on frons in front and face discally; abdomen with the hind margins of tergites slightly more broadly or more distinctly reddish in ♂, with almost entire apical part of abdomen as well as sides reddish or salmon pinkish; hind margins of tergites 2 and 3 without any or with fewer dark scales and without any dark ones across rest, and with more yellowish white or yellowish scaling on last tergite; antennal joint 3 relatively longer, its style shorter, usually less or much less than half length of joint; wings with the middle clear area more often not interrupted by infusions on vein between third and fourth posterior cells. . . . ♂ ♀ *tripartita* n. sp. (p. 784)
- (b) Entire frons and greater discal part or even sides of face and usually first two antennal joints black, with most or all the hairs on frons and discal part of face black or dark and the scales on these parts more yellowish; abdomen with narrower or more obscure reddish hind margins and only sides in ♂ reddish; hind margins of tergites 2 and 3 and to greater or lesser extent also those of the others with distinct and more black scaling especially in ♂, with more conspicuous snow-white or whitish scales on last tergite; antennal joint 3 relatively shorter, its style longer, quite or even much more than half length of joint; wings with the middle clear area usually interrupted by a cloud-like infuscation or a cloud-like spot along or on vein between third and fourth posterior cells. . . . ♂ ♀ *simillima* n. sp. (p. 787)
76. (a) Discoidal cell more elongate, narrow, not conspicuously or but little dilated at end, its inferior vein being straight, more or less in line with vein between second and third

posterior cells or only a little curved, its superior vein less convexly curved apically, the apical part of discoidal cell and base of second posterior cell usually more produced, the vein between them longer, more deeply S-curved and more parallel or subparallel to hind margin. 77

- (b) Discoidal cell broader, appearing relatively shorter, greatly or conspicuously dilated at end, its inferior vein being strongly and roundly, or sometimes subangularly, bent outwards and thus not in more or less a straight line with vein between second and third posterior cells, its superior vein distinctly much more convexly curved apically, the apical part of discoidal cell and base of second posterior cell less elongate or produced, the vein between them relatively shorter, less deeply S-curved, tending to be more oblique to hind margin. 85

- 77. (a) Infuscation in wings more *Litorrhynchus*-like and equally developed in both sexes, with a clear indentation in the middle which extends to, or nearly reaches, fourth vein, with the dark cross band or oblique band beyond it either broader or longer, extending either to hind margin or at least into fourth posterior cell; band of white scales across tergite 3, if present, more across the middle or hinder part, with yellowish or dark scales in front of it; sternopleuron with a very conspicuous patch of silvery or snow-white scales. 78

- (b) Infuscation in wings not the same in ♂♂ and ♀♀, that in ♂♂ dimidiate, extending obliquely across from about middle of axillary lobe to or towards apex of costal cell, but in known ♀♀ with a backward extension or narrowish cross band from apical part of infuscation which extends across apical part of discoidal cell into third posterior cell, though not reaching fourth posterior cell or hind margin, this extension sometimes interrupted or reduced to an isolated spot at base of second posterior cell which if present also in some ♂♂ is small or faint; broad band of white scales across tergite 3 more across base of segment and thus without yellowish or dark scales in front of it; sternopleuron with only a normal inconspicuous patch of pale or whitish scales. 80

- 78. (a) Wings with the middle clear indentation in hinder part broad, extending to fourth vein, the dark cross band beyond it broader, shorter, only extending slightly into third posterior cell, the basal band not extending beyond basal half of anal cell, with the base of marginal cell more yellowish translucent; abdomen above without a conspicuous band of white scales right across tergite 3 and with the white band across 6 very broadly interrupted discally by yellowish scales; sternites 2-4 with silvery white scales, 5 and 6 with dark or black scales and 7 in ♀ also with white scaling; white patch on sternopleuron more silvery; legs dark or black; antennal joint 3 relatively longer, its style stouter, much shorter, only about as long or a little longer than antennal joint 2. ♂ ♀ *hypargyra* Bez. (p. 805)

- (b) Middle clear indentation much narrower, more oblique, not reaching fourth vein in discoidal cell, the dark cross band beyond it narrower, more oblique, much longer, reaching hind margin of wing or extending into fourth posterior cell, the basal band extending a little beyond middle of anal cell, with the base of marginal cell uniformly dark like rest, but with a clearer spot sometimes present in first posterior cell; abdomen with broadish and conspicuous almost uninterrupted bands of white scaling right across tergites 3 and 6; venter with white or pale scaling on all the sternites; white patch on sternopleuron more cretaceous or snow-white; legs yellowish, mainly pale-scaled; antennal joint 3 relatively shorter, its style distinctly much longer, more slender, very much longer than antennal joint 2. 79

- 79. (a) Infuscation in wings slightly more extensive, the basal infuscation leaving slightly less of apical parts of anal and axillary cells hyaline and sometimes even slightly more extensive at base of fourth posterior cell and the cross band beyond clear indentation at middle distinctly broader, reaching hind margin, occupying most of the third posterior cell and also much of apical part of fourth posterior cell, sometimes tending to coalesce with infuscation at base of fourth posterior cell and thus cutting off the discoidal part of clear middle part as a spot. ♂ ♀ *pterosticha* Hesse (p. 806)

- (b) Infuscation slightly less extensive, the basal infuscation leaving slightly more of the apical parts of anal and axillary cells hyaline and the cross band beyond clear middle indentation slightly narrower, not quite reaching hind margin and only occupying middle part of third posterior cell and extending a little into fourth posterior cell.
 ♂ ♀ var. of *pterosticha* Hesse (p. 808)
80. (a) Frons in front and greater part or even entire face reddish; abdomen with the red on sides of tergites 2 and 3 (or 4) usually more extensive or broader or with the hind margins of tergites more broadly reddish and those of sternites also broadly reddish; lower parts of pleurae more often also reddish and legs usually pale reddish or luteous reddish; hair on pleurae deeper yellowish or golden, without any or with much fewer dark or black ones intermixed on mesopleuron, these being replaced by more numerous reddish golden ones; slightly larger forms, about 14–17 mm. long, with a wing-length of about 14½–18 mm. 81
- (b) Frons and face above or even greater part of face black; abdomen without or with only obscure or narrower reddish on sides of tergites 2 and 3 and with hind margins of tergites not or narrowly reddish, the sternites also less broadly reddish; pleurae usually darker or mainly black and legs dark or darker reddish, the tibiae very dark; hair on pleurae paler yellowish or more straw-coloured yellowish, with distinctly more or even numerous black ones intermixed and fewer reddish golden ones on mesopleuron; smaller forms, about 9–13 mm. long, with a wing-length of about 9½–14½ mm. 82
81. (a) Frons in front less extensively reddish, sometimes dark; discal part of face or face above with a black spot or black to a variable extent; legs relatively shorter, the tibiae darker than femora and basal tooth of claws shorter and stouter; pale scaling across discal part of base of tergite 2 more yellowish, that across hind margin of 1 darker or with more dark ones and pale scaling across tergites 4 and 5 deeper yellowish, sometimes more ochreous; oblique backward extension of infuscation in wings in ♀ tending to be interrupted or discontinuous, more often represented as an isolated infuscation or cloud across apical part of discoidal cell; basal part of first posterior cell less infuscated or only infuscated at base; style relatively shorter, usually less than half length of antennal joint 3 which is straight.
 ♂ ♀ *jubatipes* n. sp. (p. 812)
- (b) Anterior half or greater part of frons and greater part or greater discal part of face yellowish or yellowish red; legs relatively longer, more slender, the tibiae pale like femora and basal tooth of claws markedly developed, longer, more slender and sharper; pale scaling across discal part of base of tergite 2 whiter, that across tergite 1 also whitish and that across 4 and 5 less deeply yellowish; oblique backward extension of infuscation in ♀ not tending to be interrupted, continuous with anterior infuscation; first posterior cell distinctly more infuscated and in more than basal half; style slightly longer, at least half length of antennal joint 3 which is slightly curved.
 ♀ *rhodesiensis* n. sp. (p. 815)
82. (a) Apical part of discoidal cell distinctly longer, narrower, appearing more produced, its apical cross vein distinctly longer, much more sinuous or S-curved, its posterior loop deeper than anterior one; basal part of second posterior cell thus also distinctly longer, more produced; dimidiate baso-costal infuscation in wings of known ♂♂ slightly more extensive, extending from nearly basal half of axillary lobe across to a point in marginal cell about or nearly opposite end of false vein in costal cell or near end of latter cell itself, this infuscation towards apex occupying more than basal half of marginal cell, nearly basal half of enclosed submarginal cell and also much of base of first posterior cell; tergite 2, apart from pale scaling across base, without a transverse discal band across its middle; sides of abdomen in known ♂♂ with some red. 83
- (b) Apical part of discoidal cell shorter, broader, less produced, its apical cross vein distinctly shorter, less sinuous, less S-curved, its posterior bend not deeper than anterior one; basal part of second posterior cell thus also shorter, less produced; dimidiate baso-costal infuscation in wings of ♂ slightly less extensive, extending from nearly basal half of axillary lobe across to a little beyond middle cross vein, then a little

obliquely across to a point in marginal cell much before end of false vein; this infuscation apically thus appearing more truncate, occupying less than basal half of marginal cell and only extreme bases of enclosed submarginal and first posterior cells; tergite 2 with a transverse discal band of yellowish or pale scaling across middle; sides of abdomen in ♂ entirely black. ♂ *mimetica* n. sp. (p. 813)

83. (a) Mesopleuron with much fewer intermixed dark or black hairs; venter mainly pale-haired; scaling across hind margin of tergite 1 mainly dark or black discally, that across base of 2 discally and across 4 and 5 more or deeper yellowish; hind margins of tergites not or only very obscurely or rarely reddish; infuscation in wings in ♀♀ slightly less extensive, less *Litorrhynchus*-like, extending less into base of fourth posterior cell, the second band or oblique extension beyond medial clear indentation narrower, leaving a larger clear middle part in discoidal cell and sometimes interrupted or discontinuous and represented as a spot at base of second posterior cell, the apical margin of infuscation in ♀♀ jaggedly straight, not prolonged down third vein. 84
- (b) Mesopleuron with distinctly more numerous intermixed black hairs; hinder part of venter also with dark hairs; scaling across hind margin of tergite 1 whitish, that across base of 2 discally also more whitish and that across 4 and 5 also distinctly more whitish; hind margins of tergites distinctly more reddish; infuscation in wings in ♀ slightly more extensive, more *Litorrhynchus*-like, extending more into base of fourth posterior cell, the second band or extension beyond medial clear indentation distinctly much broader, more angularly prolonged down third vein, the middle clear part of discoidal cell smaller, less extensive. ♀ *hypargyroides* n. sp. (p. 813)
84. (a) Legs entirely very dark or black; sides of face tending to be less extensively reddish; style of antennal joint 3 longer, more slender, at least half or even more than half length of joint and, if shorter, legs are dark; infuscation in wings in ♂ dimidiate, the margin of infuscation extending obliquely straight across to middle cross vein and then to apex of costal cell, not much indented at base of discoidal cell; infuscation in ♀, if dimidiate, also straight across to middle cross vein and then slightly more jagged to base of submarginal cross vein where infuscation in marginal cell is truncated, but if with a backward extension the latter is broadish, its apical margin less indented along third vein and it occupies slightly more of base of second posterior cell; apical part of superior vein of discoidal cell in both sexes less convexly curved. ♂ ♀ *sigmoidea* Bezz. (p. 809)
- (b) Legs pale yellowish, the apices of femora and the tibiae usually dark; sides of face more extensively yellowish; style distinctly shorter, distinctly much less than half length of antennal joint 3 which itself is relatively longer; dimidiate infuscation in wings of ♂ with its margin less straight, distinctly indented or with a step in discoidal cell, not continuously stretching across to middle cross vein; infuscation in ♀ as in ♂, with an indentation at base of discoidal cell, the margin of infuscation not stretching straight across to middle cross vein, but otherwise similar to ♀ above, and either dimidiate infuscated with or without an isolated spot at base of second posterior cell or with a backward extension which however is slightly narrower, its apical margin more indented along third vein and the extension itself occupying less of base of second posterior cell; apical part of upper vein of discoidal cell more distinctly convexly curved. ♂ ♀ *pallidipes* n. sp. (p. 812)
85. (a) Dimidiate infuscation in wings of ♂♂ darker, more blackish brown, more distinctly well marked off, extending from about basal half of axillary lobe across to a point on first vein which is far short of apex of false vein in costal cell and without any spot at base of second posterior cell; infuscation in ♀♀ also distinctly darker, more blackish brown, more distinctly marked off, in form of an infuscation which extends from about basal half of axillary lobe substraightly across to middle cross vein and then in about anterior half all along upper vein of discoidal cell to base of submarginal cross vein, giving off a broadish, more or less well-defined, hook-like, backwardly directed extension across apical part of discoidal cell and base of second posterior cell slightly into third posterior cell, without any indications of spots at base of submarginal cross vein and base of normal second submarginal cell; lower vein of discoidal cell in both sexes more often or more usually with a distinct stump projecting into discoidal cell

from base of second posterior cell or from just in front of it; discoidal cell itself slightly less dilated apically, its inferior vein slightly less roundly bent outwards, its upper vein apically slightly less convexly rounded and its apical vein relatively longer, more deeply S-curved; middle cross vein much before middle of discoidal cell; base of tergite 2 without any or with only a very faint and narrow cross band of whitish scales.

86

- (b) Dimidiate infuscation in wings of ♂♂ less dark, more brownish, less distinctly marked off, more often diffuse, less delimited or marked off in axillary lobe from near base or middle of which it extends more irregularly or even more faintly farther across to first vein at about level of apex of false vein and more often with an isolated spot, faint spot, or an indication of one, at base of second posterior cell or along apical vein of discoidal cell; infuscation in ♀♀ usually also less dark, more brownish, more diffuse, less well marked off, extending more vaguely and indistinctly or irregularly from near apex of axillary lobe across and narrowly along upper part of discoidal cell to about or near level of base of submarginal cross vein and again more indistinctly as a more diffused backward extension across and along apical vein of discoidal cell and base of second posterior cell and more often with indications of faint or distinct clouds or spots on submarginal cross vein and at base of normal second submarginal cell; lower vein of discoidal cell in both sexes rarely with a stump projecting into cell; discoidal cell more distinctly dilated apically, its lower vein usually distinctly more roundly or even subangularly bent outwards, its upper vein apically more convexly rounded and its apical vein usually shorter, sometimes less deeply S-curved; middle cross vein at about or nearer middle of discoidal cell; base of tergite 2 invariably with a broad, conspicuous band of white or whitish scaling.

88

86. (a) Abdomen with a distinct or faint narrowish band of white scaling across base of tergite 2, with broad uninterrupted bands across 3, 6 and 7 and interrupted whitish bands, or at least some white scaling, on sides of 4 and 5; streak on sides of thorax whitish; pleural parts and metapleural tuft with more pale hairs and base or basal half of venter with pale or more pale hairs; venter with much whitish or pale scaling; apical vein of discoidal cell tending to be more deeply S-curved and slightly longer, the apical part of discoidal cell and base of second posterior cell slightly more produced, more often with the stump projecting into discoidal cell wanting, but if stump is evident and apex of this cell is short, abdomen with more white bands; margin of dimidiate infuscation in wings in ♂♂ less straight, usually with a slight indentation at base of discoidal cell; infuscation in known ♀♀ with a narrower backward extension across apical part of discoidal cell; style of antennal joint 3 relatively shorter, usually less or much less than half length of joint.

87

- (b) Abdomen with conspicuous snow-white bands only across base of tergite 3 and across 6 and 7, the latter more interrupted in middle, without any distinct white scaling even on sides of 4 and 5; streak on sides of thorax darker; pleurae and metapleural tuft with more black hairs and hair on venter entirely or mainly dark; scaling on venter mainly dark; apical vein of discoidal cell more constantly less deeply S-curved, shorter, the apical part of the cell and base of second posterior cell usually less produced and with a stump projecting into the discoidal cell more constantly present; margin of dimidiate infuscation in ♂ straighter, usually without a slight or distinct indentation at base of discoidal cell; infuscation in ♀ with a distinctly much broader backward extension across apical part of discoidal cell; style longer, usually more than half length of third joint.

♂ ♀ *morosa* Lw. (p. 819)

87. (a) Apical vein of discoidal cell slightly longer, more deeply S-curved, the apical part of this cell and base of second posterior cell usually more produced and with the stump projecting into discoidal cell more often wanting; margin of infuscation in wings of ♂ with a more distinct indentation at base of discoidal cell; sides of face with the black tending to be less extensive; style usually slightly shorter; band of white scaling across base of tergite 1 fainter and those across 4 and 5 more interrupted or sparser discally.

♂ ♀ *dux* (Wied.) (p. 816)

- (b) Apical vein of discoidal cell shorter, less deeply S-curved, the apical part of this cell and base of second posterior cell less produced and usually with a distinct stump

projecting into discoidal cell from base of second posterior cell; margin of infuscation in wing of ♂ straighter, the part at base of discoidal cell straight as in *morosa* and not distinctly indented; sides of face with the black more extensive; style tending to be longer; band of white scaling across base of tergite 1 more conspicuous and those across 4 and 5 denser, more continuous discally.

♂ var. of *dux* (Wied.) (p. 818)

88. (a) Infuscation in wings more yellowish subtranslucent, that in ♂ distinctly more extensive, not much different from that of ♀, only slightly darker and like that of ♀ extending to level of base of submarginal cross vein, with a similar backward extension across apical part of discoidal cell, leaving middle part of the latter cell clear and extending slightly down vein between second and third posterior cells; discoidal cell in both sexes less dilated apically, the apical part of its upper vein less convexly curved and its lower vein not roundly, but subangularly, bent outwards in third posterior cell; hairs on sides of abdomen with fewer black ones and more numerous reddish golden or yellowish ones; hairs on pleurae and body below entirely pale, pale yellowish to whitish towards sternum and without any or very few dark ones on coxae; hairs on frons anteriorly and face, excepting dark apical tuft, entirely pale or yellowish; pale scaling across apex of tergite 2 and across 3 more yellowish or ochreous yellowish discally; interocular space on vertex much narrower in both sexes, about as broad as, or only a little broader than, combined length of antennal joints 1 and 2.

some forms of ♂ ♀ *acrodiscoides* Bezz. (p. 762)

- (b) Infuscation in wings more brownish to dark brown, that in ♂ dimidiated and usually different from that of ♀♀, extending obliquely across from axillary lobe to a point near or opposite end of false vein in costal cell, never or rarely reaching base of submarginal cross vein and never or rarely continuous or confluent with a spot or small cloud at base of second posterior cell; infuscation in ♀♀, though similar to above, much darker, less translucent, more defined and with a larger, more conspicuous, praediscoidal spot; discoidal cell in both sexes distinctly more dilated apically, the apical part of its upper vein more convexly curved and its lower vein more roundly bent outwards; hairs on sides of abdomen rarely without numerous and dense black hairs; mesopleuron and sternopleuron and the coxae at least with some or numerous black hairs; hairs on frons and face entirely or predominantly dark or with numerous intermixed dark ones; pale scaling across tergite 3 invariably whitish or conspicuously and broadly white; interocular space much broader than combined length of first two antennal joints. 89
89. (a) Tergite 3 with a complete, broad, conspicuous, transverse band of white or whitish scales and with complete transverse bands of pale scaling across tergites 4 and 5 which are usually yellowish or even ochreous yellowish on greater discal part and white on extreme sides; hairs on sides of abdomen relatively less dense, shorter and sometimes with an admixture of more or more numerous pale ones; apical vein of discoidal cell longer, more regularly S-curved, the inward curve at its base more often not or only a little deeper than outward apical curve. 90
- (b) Tergite 3 without a complete or scarcely with a complete transverse band of white scales, the band tending to be broadly and conspicuously represented patch-like only on sides and either very obscurely or not at all discally and tergites 4 and 5 either entirely black-scaled or with some whitish ones only on extreme sides; hairs on sides of abdomen distinctly denser, relatively longer and from apical part of tergite 2 to apex entirely black; apical vein of discoidal cell usually slightly shorter, usually less regularly S-curved, the inward bend at its base tending to be much deeper than the outward apical curve which is often scarcely evident. 101
90. (a) Propleural tuft entirely pale, the mesopleuron and sternopleuron without any or with relatively fewer intermixed black hairs, the metapleural tuft and usually the venter mainly or entirely pale-haired and the sternum and coxae with fewer or less dense black hairs; sternites 4 and 5 only medially and basally, or at least less extensively, dark-scaled. 91
- (b) Propleural tuft with much black hair or entirely black-haired and the pleurae as a whole with distinctly more numerous black hairs or even predominantly dark-haired,

hinder part of metapleural tuft usually with some or more numerous black hairs, the sternum and coxae with more numerous or denser black hairs and dark scales, the middle parts or even posterior half of venter sometimes mainly dark-haired; sternites 4 and 5 more extensively, often entirely, dark or black-scaled. . . . 95

91. (a) Dimidiate infuscation in wings of ♂♂ extending obliquely across from base of fourth posterior cell to a little distance beyond middle cross vein and then straight across to second vein distinctly before or much before middle of enclosed submarginal cell and from there obliquely to opposite level of end of false vein in costal cell, with or without a faint spot, spot-like infuscation or cloud at base of second posterior cell; infuscation in ♀♀ similarly extending across to middle cross vein but considerably beyond it to nearly or to about end of discoidal cell and then indistinctly more or less straight across to first vein a little beyond end of false vein, with a backward extension of main infuscation along apical vein of discoidal cell or as in ♂♂ with only an isolated cloud or spot at base of second posterior cell and sometimes with indications of or distinct spots at bases of apical two cells as well; sides of anterior part of frons, sides below antennae and less extensive sides of face yellowish or yellowish red. . . . 92
- (b) Dimidiate infuscation in wings of ♂♂ similar, but it extends slightly farther beyond middle cross vein and across to second vein at about middle or even beyond middle of enclosed submarginal cell and rarely without a constant and larger spot or cloud at base of second posterior cell; infuscation in ♀♀ also very similar, but usually slightly more extensive and always reaching base of submarginal cross vein, with a broader, diffuse, backward extension across apical part of discoidal cell and along vein dividing it from second posterior cell and in base of the latter cell, this infuscation not isolated from main infuscation and also with or without spot-like indications at bases of apical two cells; anterior part of frons and sides of face more extensively reddish to a variable extent, the face sometimes entirely reddish or the black on disc more reduced. . . . 93
92. (a) Legs appearing darker, more brownish or brown; black on face above more extensive; spot at base of second posterior cell in wings in ♂ more often absent or very faint and without an indication of a faint spot at base of normal second submarginal cell; infuscation in wings in ♀ scarcely or not extending to base of submarginal cross vein and spot or cloud at base of second posterior cell usually smaller and without even faint spots at bases of apical two cells; larger form up to 18 mm. long, the wing up to 18 mm. . . . Namaqualand and Western form of ♂ ♀ *heros* (Wied.) (p. 822)
- (b) Legs appearing much paler yellowish; black on face usually more reduced, the sides of face more extensively yellowish or reddish; spot at base of second posterior cell in ♂ always indicated or present and more often with a very faint spot at base of normal second submarginal cell; infuscation in ♀ slightly more extensive, extending to base of submarginal cross vein and spot or cloud at base of second posterior cell usually larger, not separated from main infuscation and also with faint or distinct spots at bases of apical two cells; smaller form, usually only about 9-11½ mm. long, the wing about 10-12½ mm. . . . Karoo and Eastern Karoo form of ♂ ♀ *heros* (Wied.) (p. 822)
93. (a) Anal and axillary cells less infuscated, imperceptibly becoming less infuscated or more hyaline towards apices or beyond middle, the cloud or spot at base of second posterior cell, in ♂ especially, usually smaller, always isolated in ♂, and spots at bases of two apical cells absent or fainter, always absent in ♂; apical part on sides of tergite 2 and also sides below of rest of tergites black-haired or with fewer golden ones; pleural parts usually with fewer or less dense dark or black hairs. . . . 94
- (b) Anal and axillary cells distinctly darker, more infused, even to near apices, the cloud or spot at base of second posterior cell larger in both sexes, even extending down bounding veins of latter cell in ♀, sometimes tending to be joined on to main infuscation by a fuscous border along apical part of upper vein of discoidal cell in ♂ as in ♀, and with the spots at bases of apical cells more evident (these veins sometimes bordered with fuscous in ♀), also indicated in ♂; apical part on extreme sides of tergite 2 and sometimes on sides below on some of the others, especially in forms with more yellowish

hairs on pleurae, with more or more conspicuous reddish golden hairs; pleurae usually with more extensive dark hairs.

♂ ♀ montane form of *heros* (Wied.) (p. 822)

94. (a) Anterior half of frons and the face, even if entirely reddish, entirely black-haired or with only a very few golden ones intermixed on sides below antennae; mesopleuron usually with some or a few intermixed dark hairs and hairs on pleurae and collar more yellowish to straw-coloured yellowish; hairs on sides of abdomen relatively longer; tergites 4 and 5 with less whitish and more yellowish scaling and that across hind border of white basal band paler yellowish; infuscation in wings more smoky brownish or yellowish brown, the spot at base of second posterior cell in ♂ more distinct; squamal fringe more often darker or black.

♂ ♀ slight form of *heros* (Wied.) (p. 822)

- (b) Anterior half or more of frons and entire face pale reddish yellow, yellow-scaled and with reddish golden hairs on sides of frons and down entire face (excepting only black tuft at apex), or at least with relatively few intermixed dark ones discally; mesopleuron without any dark hairs, but with more intermixed fulvous or reddish golden ones, those on upper pleural parts and in collar gleaming slightly deeper golden; hairs on sides of abdomen shorter, sometimes with more golden ones intermixed; yellowish scaling on abdomen above deeper yellowish or more ochreous, the white bands showing up more conspicuously; infuscation in wings sometimes darker, more coffee-brownish, without a distinct or only a feeble spot at base of second posterior cell in ♂; squamal fringe pale.

♂ ♀ of a North-western form of *heros* (Wied.) (p. 822)

95. (a) Infuscation in wings darker, more brownish, well defined, extending in ♂♂ from basal part across base of fourth posterior cell for some distance beyond middle cross vein and then across basal third or basal half of enclosed submarginal cell to opposite end of false vein, usually with a distinct or even conspicuous spot at base of second posterior cell; infuscation in ♀♀ also more extensive, extending to much beyond middle cross vein and nearer apex of discoidal cell and across more than basal half of enclosed submarginal cell to end of false vein and either with a backward extension as a fuscous border along apical part and apical vein of discoidal cell to a larger cloud at base of second posterior cell, or with a larger isolated cloud at base of latter cell, and sometimes also with faint spots at bases of two apical cells; pleurae, especially mesopleuron, sternopleuron and propleural tuft, with distinctly more numerous black hairs; anterior part of frons or sides of frons more broadly and entire or greater part of face, or its sides more extensively, reddish. 96

- (b) Infuscation in wings paler, fainter brownish or more greyish brownish, more faintly indicated and less extensive, that in ♂ extending to only a little beyond middle cross vein and then across only the extreme basal part of enclosed submarginal cell, without any distinct spot at base of second posterior cell; infuscation in ♀ much less extensive, more like that of ♂, extending to scarcely half distance beyond middle cross vein and then across only about basal half or even less of enclosed submarginal cell, without any spots at bases of apical cells and with only a faint isolated cloud or spot at base of second posterior cell; pleurae with a tendency to have fewer black hairs; anterior part of frons and at least basal discal part of face black or greater part of latter sometimes dark. ♂ ♀ *eluta* Lw. (p. 827)

96. (a) Dimidiate infuscation in wings of ♂ distinctly less extensive, crossing distinctly less than basal half of enclosed submarginal cell and without any or with only a faint spot at base of second posterior cell; infuscation in ♀ also less extensive, crossing at only about half of enclosed submarginal cell and with spot at base of second posterior cell usually smaller; basal parts of anal and axillary cells in both sexes distinctly less extensively, more faintly, infuscated; apical vein of discoidal cell relatively shorter; entire sternites 4 and 5 dark-scaled; yellowish scaling on head in front less dense; middle part of frons in front and discal part of base of face black.

♂ ♀ form of *eluta* Lw. (p. 827)

- (b) Dimidiate infuscation in ♂♂ distinctly more extensive, crossing at least basal half of enclosed submarginal cell and with a more distinct or even larger spot at base of

second posterior cell; infuscation in ♀♀ also more extensive, crossing at distinctly more than or much more than basal half of enclosed submarginal cell and with the cloud at base of second posterior cell much larger, sometimes extensive, extending hook-like along apical veins of discoidal cell; basal parts of anal and axillary cells (or the entire cells) in both sexes usually more extensively or more uniformly infuscated; apical vein of discoidal cell relatively longer, the apical part of cell slightly more produced; sternites 4 and 5 less extensively and usually not entirely dark-scaled and, if extensive, infuscation in wings more extensive and darker; yellowish scaling on head in front denser; head in front either with entire frons dark or frons in front and entire or greater part of face reddish or yellowish or at least more extensively reddish and, if with middle part of frons anteriorly and disc of face black, other characters do not differ. 97

97. (a) Base of tergite 2 with a conspicuous broadish band of white scales; pleurae on the whole with fewer black hairs and scales, the propleural tuft anteriorly below with relatively fewer black hairs and hind part of metapleural tuft with fewer dark hairs if not entirely pale; hairs and scaling on coxae usually not entirely black and, if so, tergite 2 with a white band; tuft on each side at base of abdomen white and hairs in collar, upper part of mesopleural tuft more whitish, straw-coloured yellowish or at least not deep or orange yellowish; infuscation in wings more extensive in ♀♀, the infuscation extending along apical veins of discoidal cell as a hook-like backward extension, forming a larger cloud at base of second posterior cell; front half or less or only sides anteriorly of frons reddish; sides of abdomen not or less broadly reddish. 98

- (b) Base of tergite 2 without any white band or with much fewer pale scaling; pleurae with more numerous or more extensive black hairs and scales, the propleural tuft below with a much denser and more extensive tuft of black hairs and greater hinder part of metapleural tuft black; hairs and scaling on coxae entirely and densely black; tuft on sides of tergite 1 orange yellowish and hairs in collar anteriorly and upper part of mesopleural tuft deeper yellowish or more orange; infuscation in wings reddish brownish, relatively less extensive in both sexes, not extending around apex of discoidal cell and with the cloud at base of second posterior cell smaller, isolated in both sexes; greater part or more than front half of frons reddish like the face; sides of abdomen much broader reddish. ♂ ♀ *damarensis* n. sp. (p. 827)

98. (a) Infuscation in wings darker, more blackish brown or almost black, occupying more or less uniformly entire anal and axillary cells; squamal fringe dark or black; knobs of halteres dark or usually more darkened above; scaling on coxae and hairs and scaling on sternum not entirely black, at least with some or numerous pale or yellowish ones. 99

- (b) Infuscation in wings more reddish brownish or smoky brownish, occupying only bases or basal parts of anal and axillary cells, these cells becoming almost clear apically or even more than apical half or greater part of axillary lobe sometimes clear; squamal fringe paler or even whitish; knobs of halteres paler, more yellowish or whitish above; hairs and scales on coxae and on sternum entirely, mainly or conspicuously dark or black. 100

99. (a) Wings more greyish hyaline, the infuscation more smoky brownish, more diffused, less well marked off and more extensive, especially in ♀, in which it extends as a fuscous border along veins in apical part of discoidal cell and even down veins bounding second posterior cell; cloud at base of latter cell larger, more diffuse; basal veins of two apical cells with spots or even fuscous borders, especially in ♀; upper part of mesopleural tuft entirely pale, straw-coloured or whitish or yellowish; propleural tuft usually with more dark or black hairs below; scaling on head in front mainly greyish yellowish or yellowish; scaling on abdomen, other than white bands, also with extensive yellowish ones; scaling on legs gleaming more greyish or with more greyish or yellowish ones as well as dark ones; frons in front and face on sides or even discally more extensively reddish or with less black. ♂ ♀ montane form of *heros* (Wied.) (p. 822)

- (b) Wings more glassy hyaline, the infuscation darker, very dark blackish brown or black, well demarcated, slightly less extensive, even in ♀, in which the fuscous backward extension along apical part and apical vein of discoidal cell is well marked off, hook-like, less diffuse; cloud at base of second posterior cell less diffuse, more well marked off in both sexes; basal cross veins of apical cells in both sexes without any spots or infusions; upper part of mesopleural tuft with dense or numerous black hairs intermixed; propleural tuft usually with fewer or even dark hairs below; scaling on head in front with much or even extensive black ones; scaling on legs gleaming more black, or with more extensive dark scales; frons in front and face above usually more extensively black or mainly dark.

♂ ♀ form *litoralis* n. of *heros* (Wied.) (p. 825)

100. (a) Front half of frons and entire or greater part of face reddish and entire head in front with yellowish or brassy yellowish scaling; legs paler, more yellowish brownish under dark scaling, with more pale ones also present; tergites 2 and 3 usually with more reddish on sides; sternites with distinct and even broadish reddish hind margins; scaling on thorax above mainly in streaks of yellowish and brownish ones; hairs and hair-like scales on meso- and sternopleurae also with numerous or more numerous yellowish, golden, or fulvous ones; sternites 4 and 5 less extensively black-scaled, only at middle; infuscation in wings more brownish, the veins more reddish or reddish brown and with more yellowish scales on basal comb.

♂ ♀ form *protuberans* Bezz. of *heros* (Wied.) (p. 825)

- (b) Greater middle part of frons anteriorly and medial discal part of face, or entire frons and face above, dark or black to a variable extent and interantennal part and disc of face usually with dark or black scaling; legs darker or black, black-scaled; sides of abdomen entirely black or with only obscure reddish on sides of tergites 2 and 3; sternites entirely black or with more obscure and narrower reddish hind margins; scaling on thorax above mainly black or with less distinct streaks of pale ones; hairs and intermixed hair-like scales on meso- and sternopleurae mainly or entirely black; sternites 4 and 5 more extensively black-scaled across entire or almost entire basal halves; infuscation in wings darker, more smoky brownish, the veins darker and with black scales on basal comb.

♀ form *melanthia* n. of *heros* (Wied.) (p. 826)

101. (a) Front half or at least sides anteriorly of frons and the face or greater part on sides of face reddish; greater part of collar, humeral tuft, greater part of upper part of mesopleural tuft and greater part of or anterior part of metapleural tuft straw-coloured, yellowish, to golden yellowish, and all or more numerous hairs on sides apically of tergite 1 whitish; band of white scaling across tergite 3 tending to be less interrupted or to be continuous discally and usually with some white scales on sides of 4; scaling on thorax above usually with streaks of paler ones; spot or cloud at base of second posterior cell usually also present in ♂, and in ♀ it tends to be larger.

♂ ♀ *monticola* n. sp. (p. 828)

- (b) Entire frons and discal part of face or at least greater discal part of frons and more extensively down sides of face black; greater part of collar behind, humeral tuft, greater part of or even entire mesopleural tuft, entire metapleural tuft and hairs apically on sides of tergite 1 black, the yellowish hairs on these parts, if present, distinctly fewer, and the mesopleural parts being mainly black-haired; band of white scaling on tergite 3 usually represented only as a conspicuous white patch on sides, and sides of 4 usually black-scaled like the greater discal part; scaling on thorax and scutellum above mainly dark; spot at base of second posterior cell more often entirely wanting in ♂ or very inconspicuous, and even in ♀ less extensive.

♂ ♀ *atrata* n. sp. (p. 830)

102. (a) Notopleural, thoracic and scutellar bristles long, well developed, usually very conspicuous; sides of abdomen with distinct and dense hairs even if these be sometimes short, and venter always with longish or conspicuous hairs; scaling on head in front, behind eyes, on body above or below not conspicuously and brilliantly opalescent, metallic greenish or bluish and purplish iridescent; middle and hind femora usually with numerous or at least with well-developed and conspicuous spines; wings rarely very shining or brilliantly iridescent or opalescent and, if so, other characters do not

- differ; first posterior cell rarely not distinctly narrowed apically; style of antennal joint 3 usually more developed or even long and if minute other characters do not differ. 103
- (b) Notopleural, thoracic and scutellar bristles much shorter, reduced or feebly developed; sides of abdomen without any or with only very fine, scarcely distinguishable hairs, and even those posteriorly shorter and poorly developed, and venter without any or with only very short and fine hairs; scaling on head in front, behind eyes and either on body above or on parts below conspicuously and brilliantly metallic, opalescent or greenish, bluish and purplish iridescent or shining anthracite-like; middle and hind femora without any, much fewer, feebler, or with minute spines; wings very shining and brilliantly iridescent or opalescent; first posterior cell usually very broadly open, not or scarcely narrowed apically; style minute and spine-like. 196
103. (a) Front legs on the whole stouter, often markedly short, the front femora stouter, more often relatively shorter, only about or often distinctly much less than $1\frac{1}{2}$ times length of front coxae, often spinulate or with some shortish spines; front tibiae usually stouter, with some distinct spicules, sometimes conspicuously spinulate; front tarsi on the whole thicker, with stouter spines below and with coarser hairs, often relatively shorter, only about or only a little longer than half length of tibiae and, if longer and slender, the front tibiae at least are spiculate; claws of front tarsi, relative to the other claws, also less reduced; wings more often with larger or more conspicuous spots on some of cross veins and bifurcations in addition to infuscated anterior part, sometimes uniformly infuscated throughout, rarely hyaline or with only a dimidiate pattern. 104
- (b) Front legs not with all these or even most of these characters, usually more slender, longer, the front femora usually at least $1\frac{1}{2}$ times length of front coxae, rarely with spinules; front tibiae more often slender, rarely shortish, without any distinct or conspicuous spicules; front tarsi usually more slender, with finer and denser hairs and finer spines below; front claws relatively smaller, more reduced; wings with various types of patterns and if with spots these are usually small, rarely giving the hinder or apical parts a spotted appearance. 113
104. (a) Wings broader basally, not appearing stalked, the alula and axillary lobe broader, more rounded and lobe-like, the latter considerably broader than anal cell; lower vein of discoidal cell more curved or sinuous, its basal part more rapidly or sharply bent towards or at right angles to fourth posterior cell, the third posterior cell thus appearing more distinctly pentagonal; second posterior cell much or very much narrower than third posterior cell on hind margin; spicules on front tibiae more strongly developed; scutellum mainly reddish. 105
- (b) Wings very narrow basally, appearing to be stalked, the alula and axillary lobe much narrower or very narrow, less lobed in appearance, the latter as broad as or not very much broader than anal cell; lower vein of discoidal cell less curved, its basal part less sharply or angularly bent towards fourth posterior cell, the third posterior cell thus appearing more quadrangular or even triangular; second posterior cell relatively broad apically, only a little narrower or sometimes as broad as third; spicules on front tibiae more feebly developed; scutellum dark or black. 111
105. (a) Wings with the base and anterior costal part infuscated and with distinct spots or clouds or confluent spots on most or some of the cross veins and bifurcations in apical and hinder hyaline parts; body above and below with more pale scaling, the pale or whitish ones on abdomen above in complete bands across more tergites; legs paler, yellowish, yellowish brownish or pale brownish; front femora shorter, stouter, and front tarsi relatively shorter. 106
- (b) Wings either entirely and uniformly infuscated or dimidiate infuscated in basal and anterior part, without any spots on cross veins and bifurcations in more hyaline or clearer apical and hinder parts; body above and below with more or with predominant dark or black scaling, the whitish or pale ones on abdomen above confined to sides or forming fewer complete bands across tergites; legs much darker or entirely

black; front femora long, more slender and front tarsi also relatively longer or much longer. 109

106. (a) Infuscation in wings more extensive, occupying entire second basal cell and also more than basal half of anal cell, the clearer parts in wings more greyish hyaline, the wings also more spotted in appearance, distinct rounded spots or clouds being present on all cross veins and bifurcations; body above mainly with more yellowish or ochreous yellowish scaling and below with conspicuously cretaceous or chalky white ones, the white ones on abdomen above forming a complete basal band only across base of tergite 2, very indistinctly across 3 (mostly on sides) and mostly on sides of posterior ones; hairs at base of abdomen on sides more yellowish and with numerous or with some black ones laterally across hind margin of tergite 1; legs much paler yellowish, mainly yellowish- or white-scaled; style of third antennal joint short or minute, not longer than antennal joint 2; smaller forms. 107
- (b) Infuscation in wings less extensive or more broken up, the greater apical part of or entire second basal cell and more than apical halves or even entire anal and axillary cells being hyaline, the infuscated apical and hinder parts of wings more vitreous or glassy hyaline, the wings on the whole less spotted in appearance, the spots either large and confluent with the main infuscation or the spots on cross veins relatively smaller; body above with more dark or black scaling in addition to white and yellowish ones, that below, though pale and whitish, less conspicuously chalky white, the white scaling on abdomen above forming more or less complete bands across more tergites (4) and also extensively and broadly on sides of 1 and 2, but not across base of 2; hairs at base of abdomen on sides of tergites 1 and 2 in form of a very extensive white or whitish patch without any dark hairs; legs appearing more brownish or darker owing to an admixture of much dark scaling; style very much longer, nearly half to about or almost length of antennal joint 3; relatively larger forms. 108
107. (a) Apical veins in wings with more spots or small clouds, with a more constant faint spot at apex of third vein and the apical part of marginal cell in ♂ more infuscated; body usually darker, with narrower reddish hind margins to tergites and sternites, less extensive red on sides of tergites 2 and 3 and discal part of front part of face more extensively black. certain forms of ♂ ♀ *capensis* (Wied.) (p. 768)
- (b) Apical veins with fewer, only one or without any spots and apical part of marginal cell in both sexes more extensively clear and usually without a faint spot at end of third vein; body on the whole more yellowish, with relatively broader tergal and sternal hind margins, more extensive red on sides of tergites 2 and 3 and with a relatively smaller black infusion on face in front. certain forms of ♂ ♀ *capensis* (Wied.) (p. 768)
108. (a) Wings (pl. ii, fig. 7) with a characteristic anterior blackish brown pattern, occupying the base to slightly less than basal halves of anal and axillary cells and as two backward extensions, a broader one across basal half of discoidal cell to fifth vein where it forms the large confluent spot across base of fourth posterior cell and a smaller hook-like extension across apical part and apical vein of discoidal cell where it forms the confluent spot on apical cross vein of discoidal cell, and in addition with an isolated quadrate spot on basal vein of second submarginal cell and a confluent one at base of submarginal cross vein; apical cross vein of discoidal cell slightly S-curved; hairs across hinder part of collar above, those densely intermixed in mesopleural tuft and across prosternal part black, the metapleural tuft fulvous; hair-like scales on pleurae fulvous brownish; streak on each side of thorax more brownish; patch of white scales on sides of tergite 2 more extensive, composed of longer white scales and hairs on sides of 2 mostly dark; hairs on venter dark brownish golden to black posteriorly and much of the scaling also darker; style of antennal joint 3 longer, quite or nearly as long as joint; front legs shorter, much stouter, with shorter stiff hairs on front tarsi which are also present on apical part of front tibiae; body broader, relatively shorter and wings broader. ♂ ♀ *inaequalipes* Lw. (p. 837)
- (b) Only the extreme base, costal cell, greater part of marginal cell and first basal cell of wings infuscated, the rest hyaline, but with spots or infusions of variable intensity on the cross veins and bifurcations; apical cross vein of discoidal cell straight; hairs in

collar above and on pleurae entirely or predominantly yellowish or with only a few dark intermixed ones on mesopleuron, those in metapleural tuft more pale yellowish; hair-like scales and scales on pleurae whitish or white; streak on each side of thorax conspicuously white; patch of white scales on sides of tergite 2 less extensive, composed of shorter scales, and hairs on sides of same tergite whitish; hairs and scales on venter whitish, though a row of spots on each side may be dark; style shorter, about or a little less than half length of third antennal joint; front legs longer, more slender, with finer hairs on front tarsi above; body more elongate and wings narrower.

♂ ♀ *punctulata* Macq. (p. 835)

109. (a) Wings relatively longer, uniformly dark smoky brownish or greyish blackish brown throughout, without any distinct darker spots, but with the yellowish brownish or brownish veins slightly and broadly dark-bordered; first posterior cell less narrowed apically, broadly open; second posterior cell more rectangular, its sides straighter; more than front half of frons or sometimes entire frons, face and even sides of head, sides of thorax, scutellum and sides of tergites 2-4 broadly, the pleurae to a variable extent and legs yellowish brownish to reddish brown; scaling on head in front with more numerous and broader yellowish ones and white ones on abdomen above in a complete band across base of tergite 2; hairs on entire pleurae, entire sides of abdomen, even basally, and on venter black; style of antennal joint 3 yellowish, stout, shorter, a little less than third length of joint; spicules on front tibiae shorter.

♂ ♀ *tabanoides* Bezz. (p. 839)

- (b) Wings, though also narrowish, relatively shorter, dimidiately infuscated blackish brown or dark smoky brown in anterior part from base of axillary lobe across basal vein of fourth posterior cell, basal half or base of discoidal cell, across base of first posterior cell to opposite end of false vein in costal cell or a little beyond it, the rest of wings greyish hyaline or only very faintly tinged; first posterior cell though broadly open more distinctly narrowed apically; second posterior cell with its sides more sinuous; head in front entirely black, sides of thorax black and sides of abdomen above entirely black, the legs also black; scaling on head mostly dark, with fewer and narrower brassy or golden-gleaming ones, and white scaling on abdomen either confined to sides of tergites or forming complete bands across 3, 6 and 7; hairs on pleurae with the upper part of mesopleural tuft, some sometimes in propleural tuft, some or numerous ones in metapleural tuft, the tuft at base of abdomen on sides and those at base of venter yellowish or whitish; style darker, more slender, slightly longer, only a little shorter than half length of third joint; spicules on front tibiae with those on outer hinder aspect markedly long.

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110. (a) Infuscation in wings slightly more extensive, extending from at least basal half of anal cell, across nearly basal half of discoidal cell to across at least or more than basal half of enclosed submarginal cell, the clear parts of wings more hyaline; white scaling on abdomen more confined as patches on sides of all the tergites and as complete bands sometimes only across 6 and 7; all the hairs on lower parts of pleurae entirely black, but the metapleural tuft with much pale hair or even entirely pale.

♂ ♀ *vumbuensis* n. sp. (p. 842)

- (b) Infuscation in wings slightly less extensive, extending from distinctly less than basal half of anal cell across extreme base of discoidal cell, extreme base of first posterior cell to across distinctly less than basal half of enclosed submarginal cell, the clearer parts of wings more distinctly tinged faintly brownish or greyish, especially in ♀; white scaling on abdomen absent on sides of tergite 2, present as a complete band across 3, absent on 5, but more or less complete on 6 and 7; some or numerous hairs in propleural tuft and on prosternal part yellowish, the metapleural tuft entirely or predominantly black.

♂ ♀ *spectrum* Speis. (p. 841)

111. (a) Wings infuscated at base and in anterior costal part or half from extreme base or basal half of anal cell obliquely across to opposite end of false vein in costal cell or end of latter cell and with large or small spots or infusions on cross veins and bifurcations or also near ends of apical veins; discoidal cell more truncate apically; third posterior cell long, more triangular; antennal joint 3 much longer, more conical, its style relatively much shorter, less or much less than half length of joint; face on the

whole more sharply conical, less shining, not impressed apically; sternopleuron without a patch of silvery white scales. 112

- (b) Wings, excepting only the yellowish base and costal cell, entirely hyaline, without any spots; discoidal cell more subacute apically, its apical vein slightly less oblique to hind margin; third posterior cell shorter, more quadrangular; antennal joint 3 much shorter, more pyriform, its style relatively very much longer, quite as long as or even slightly longer than joint, slightly dilated at its apex; face on the whole blunter, more shining, slightly depressed apically; sternopleuron with a patch of dense silvery gleaming white scales. ♀ *claripennis* n. sp. (p. 887)
112. (a) Wings (pl. ii, fig. 8) broader, more developed, the infuscation darker, more blackish brown, more extensive, extending from base of axillary lobe across more than half of anal cell, across bases of fourth and third posterior cells, basal half of discoidal cell, basal half or more than basal half of enclosed submarginal cell and along marginal cell to end truncately and somewhat obliquely opposite end of costal cell, with large subquadrate to rounded spots on cross veins and bifurcations, those in apical part of wings isolated, but those along middle confluent with main infuscation, the large oblique spot on apical cross vein of discoidal cell often confluent with main infuscation to form a hook-like backward extension, usually with a spot also near end of second vein and sometimes a smaller one at end of second apical vein; first posterior cell more broadly open; scaling on head and body above and below predominantly dark or black, only that across base of tergite 2, sides of 3 and 6 and 7 white, and streaks on sides of thorax white; hair, excepting yellowish collar above and sometimes some intermixed yellowish or brownish ones in propleural tuft and at base of abdomen on each side and the white plumula, entirely black on body above and below; legs much darker, dark-scaled; front ones shorter and stouter and the spicules on front tibiae feebly developed; proboscis very short and stout. ♂ ♀ *loxospila* n. sp. (p. 843)
- (b) Wings relatively poorly developed, markedly narrow and stalked, the yellowish infuscation less extensive, occupying only the extreme base of anal cell, greater part of second basal cell, entire first basal cell and marginal cell to obliquely opposite end of false vein, with elongated spots on cross veins and bifurcations, those in hyaline parts isolated though the two on submarginal cross vein and base of second submarginal cell tending to be confluent, without any spots near ends of apical veins; first posterior cell much narrowed apically; scaling on body predominantly yellowish and ochreous yellowish, paler ones across bases of tergites 2, 3 and 5 more creamy than white, and streaks on sides of thorax more yellowish; hairs on body, excepting black ones on head in front, thoracic bristles and hairs on sides of abdomen, predominantly yellowish; legs more yellowish, yellow-scaled; front legs more slender, longer, the spicules on front tibiae well developed; proboscis slender, longish, projecting much beyond buccal cavity. ♀ *ceuthodonta* Hesse (p. 845)
113. (a) Vertex or occiput and entire body above not entirely, uniformly and densely covered with deep ochreous or ochreous yellow scales and entire frons or front part of frons, entire face, sides of head, a conspicuous streak on each side of thorax and entire pleurae and body below as well as legs not entirely and densely covered with conspicuous chalky white or snow-white scales; all hairs and bristles on thorax, scutellum and abdomen above not entirely pale or yellowish and those on face, pleurae and body below not entirely snow-white; face on the whole blunter, less acutely and sharply pointed apically; base of third posterior cell more often not sharply bent at right angles to fourth posterior cell and without a constant tendency for a short stump or an indication of one to be present at bend. 114
- (b) Base of frons or vertex, occiput and entire body above entirely, uniformly and densely covered with ochreous yellow or deep ochreous scaling and entire frons or front half of frons, entire face, sides of head, a conspicuous streak on each side of thorax, round sides of scutellum, entire pleurae, body below and legs entirely and very densely covered with conspicuous, contrasting, chalky white or snow-white scales; all the hairs and bristles (excepting only the black hairs on frons) on thorax and scutellum, on abdomen above and on sides yellowish, and those on face, pleurae, body below and venter entirely snow-white; face on the whole more acutely or sharply and

narrowly pointed apically; base of third posterior cell usually more sharply bent or at right angles to fourth posterior cell and usually with a distinct stump or an indication of one at bend. 195

114. (a) Wings with more extensive infuscation, either tinged throughout or dimidiately infuscated, patterned or tinged in anterior half and with distinct spots, clouds or spot-like infusions on most or some of the cross veins, or wings more or less dimidiately tinged or infuscated in anterior costal part or half and in which, in ♀♀ at least, the base, costal cell, marginal cell, first basal cell, bases of enclosed submarginal and first posterior cells and to a fainter and variable extent also the second basal cell and base of discoidal cell are infused or tinged or darker to a variable extent, and in which in the case of some of the more clear-winged ♂♂ the base, costal cell, first basal cell and base or basal half of marginal cell at least tinged yellowish or yellowish brown to a variable extent, and in both sexes of which spot-like infusions on some of the cross veins in hyaline part are present or absent. 115
- (b) Wings entirely clear or hyaline or only faintly greyish hyaline in both sexes or only with the extreme base and costal cell infuscated or yellowish to a variable extent, or in the case of some ♀♀ with only the base, costal cell, first basal cell and base of marginal cell very faintly or scarcely perceptibly tinged yellowish, the second basal and discoidal cells and bases of enclosed submarginal and first posterior cells being entirely hyaline; spots or spot-like infusions either entirely absent or only feebly indicated on middle cross vein and base of second vein. 188
115. (a) Wings with a more extensive pattern, either extensively infuscated or infused in more or less basal two-thirds, or with more extensive clouds or spots in addition to main anterior infuscation, or with a *Litorrhynchus*-like pattern of cross bands or clear indentations into the main infusions, or with a more or less dimidiate infuscation accompanied by an infuscation on apical cross vein of discoidal cell or at base of second posterior cell to a variable extent and in which at the same time the anal cell is also more or less extensively infused to a variable extent and bases of apical two cells are also sometimes faintly clouded or spotted. 116
- (b) Wings with less extensive infuscation, either sharply or irregularly and dimidiately infuscated in anterior and basal part from about middle of axillary or anal cell obliquely across to end of costal cell and without any spots or infusions on cross veins in clear part or at apical part of discoidal cell, or tinged throughout but darker anteriorly, or with a narrow and variable anterior costal infuscation between costal and fourth vein and with or without spot-like infusions on some of the cross veins in hyaline part. 146
116. (a) Wings either with the basal three-quarters more or less uniformly infuscated, leaving only apical part of discoidal cell and apical parts of some of the posterior cells clear to a variable extent, or they are extensively spotted or clouded, or with a more or less dimidiate infuscation which is slightly different in the two sexes, that in ♂♂ with a slight or distinct isolated spot or infuscation at base of second posterior cell and that in ♀♀, if not more or less the same, with a broader, more diffuse anterior infuscation from which extends a diffuse backward extension across apical part of discoidal cell to a variable extent, this backward extension not broad, clear-cut and band-like and not separated from main infuscation by a broad, clear-cut, hyaline indentation from hind margin into discoidal cell; basal part of wings also without a broad clear, more hyaline or faintly yellowish band across base of first basal cell, the entire or greater part of second basal cell and middle of anal cell. 117
- (b) Wings with a different pattern, either with a *Litorrhynchus*-like pattern, consisting of an extensive infuscation of uniform blackish brown to black or of a partly yellowish and partly brownish infuscation extending from base to near end or to end of costal vein and obliquely across to third posterior cell or even to hind margin and which is almost divided into two dark bands by a distinct, broadish, clear-cut, hyaline indentation at about middle from hind margin into discoidal cell or into base of first posterior cell, or the pattern in wings consists of a darkish base and an oblique band-like infusion near middle, separated by a broadish, clearer or faintly yellowish band across

basal half of first basal cell, greater part of or entire second basal cell and middle of anal cell. 139

117. (a) Wings either with more or less the basal three-quarters more uniformly infuscated up to or near to end of costal cell and across to third posterior cell, leaving the apical parts of third and fourth posterior cells and sometimes apical part of discoidal cell clear to a variable extent, or the wings are extensively spotted, with spots or clouds near ends of apical veins and all or most of the posterior ones as well; smaller forms about 6-7 mm. long, with a wing-length of about $6\frac{1}{4}$ - $7\frac{1}{2}$ mm. 118
- (b) Wings not so extensively or uniformly infuscated, usually with more of the discoidal cell and much more of the posterior cells clear or hyaline and if spotted distinctly less so, without any spots near ends of apical veins and without spots near ends of all the posterior veins or cells; relatively larger to large forms, usually more than 6 or 7 mm. long and wings also longer than $6\frac{1}{4}$ - $7\frac{1}{2}$ mm. 119

118. (a) Wings extensively spotted or mottled, rounded spots being present near ends of the apical veins and all or most of the posterior veins and large confluent spots also present at bases of apical two cells, apex of discoidal cell and at bases of third and fourth posterior cells, with clear areas present in middle of anal and axillary cells; greater part of scutellum reddish and sides of tergites 2 and 3 and hind margins of tergites more broadly reddish and venter also with much red; legs paler, more yellowish; hairs on pleurae and base of venter mainly pale, yellowish or straw-coloured; scaling on body above, especially frons and abdomen, with more or much dark or black scaling in addition to pale ones.

♀ *plerosticta* n. sp. (p. 783)

- (b) Wings (pl. ii, fig. 6) with more or less basal three-quarters uniformly smoky brownish or blackish brown up to base of submarginal cross vein and obliquely across to basal half of first posterior cell and basal part of second posterior cell to third posterior cell, the apical half of discoidal cell and to a certain extent middle apical parts of third and fourth posterior cells being clear or clearer, without any darker spots on cross veins or near ends of posterior veins, but with faint infusions at bases of apical two cells and without any clear areas in middle of anal and axillary cells; greater part or entire scutellum black, sides of abdomen and venter also mainly black, the reddish hind margins of tergites much narrower; legs much darker or blackish brown; hairs on pleurae, excepting upper part of mesopleural tuft, and on entire venter black; scaling on body above, especially the abdomen, with more pale or yellowish whitish or greyish yellowish scaling, that on venter however entirely dark.
- ♂ ♀ *nebulosa* n. sp. (p. 832)
119. (a) Middle and hind legs with distinctly more numerous spines and spicules, the hind tibiae especially with distinctly more numerous and denser spicules and longer scales on upper outer aspect; discoidal cell relatively broader, greatly dilated at end, its upper vein distinctly more convexly curved apically, its lower vein strongly and roundly or sometimes even subangularly bent outwards and its apical vein more S-curved or sinuous; wings usually more or less dimidiately infuscated in ♂♂, with a slight or distinct isolated spot or infuscation at base of second posterior cell and in ♀♀ with a slightly broader basal and anterior infuscation, having a backward extension across apical part of discoidal cell to a variable extent or with a larger isolated infusion at base of second posterior cell. 120
- (b) Middle and hind legs with distinctly fewer spines and spicules, the hind tibiae with fewer spicules and shorter scales on upper outer aspect; discoidal cell relatively narrower or at least less dilated at end, its lower vein not or much less bent outwards, its upper vein straighter or much less convexly rounded apically and its apical vein usually straighter, less sinuous and if S-curved hind tibiae at least without dense spicules; wings with a different pattern, usually similar in both sexes, or sometimes more spotted in appearance and, if with a slight sexually different dimidiate pattern like that above, discoidal cell is not dilated apically. 133
120. (a) Tergite 3 with a complete, broad and conspicuous, transverse band of white or whitish scales, and with complete transverse bands of pale scaling across tergites 4 and 5 which are usually yellowish or even ochreous yellowish on greater discal part and white on

- extreme sides; hairs on sides of abdomen relatively less dense, shorter, sometimes with an admixture of more or more numerous pale ones; apical part of discoidal cell longer, more regularly S-curved, the inward curve at its base more often not or only a little deeper than outward apical curve. 131
- (b) Tergite 3 without a complete or scarcely with a complete band of white scales, the band tending to be broadly and conspicuously represented patch-like only on sides and either very obscurely or not at all discally, and tergites 4 and 5 either entirely black-scaled or with some whitish scales only on extreme sides; hairs on sides of abdomen distinctly denser, relatively longer and from apical part of tergite 2 to apex entirely black; apical vein of discoidal cell usually slightly shorter, usually less regularly S-curved, the inward bend at its base tending to be much deeper than the outward apical curve which is often scarcely evident. 132
121. (a) Propleural tuft entirely pale, the mesopleuron and sternopleuron without any or with relatively fewer intermixed dark hairs, the metapleural tuft and usually the venter mainly or entirely pale-haired, and the sternum and coxae with fewer or less dense black hairs; sternites 4 and 5 only medially and basally or at least less extensively dark-scaled. 122
- (b) Propleural tuft with much black hair or entirely black-haired and the pleurae as a whole with distinctly more numerous black hairs or even predominantly dark-haired, the sternum and coxae with more numerous or denser black hairs and dark scales, and middle parts or even posterior half of venter sometimes mainly dark-haired; sternites 4 and 5 more extensively, more often entirely, dark or black-scaled. 126
122. (a) Dimidiate infuscation in wings of ♂♂ extending obliquely across from base of fourth posterior cell to a little distance beyond middle cross vein and then straight across to second vein distinctly before or much before middle of enclosed submarginal cell and from there obliquely to opposite level of end of false vein in costal cell, with or without a faint spot or spot-like infuscation or cloud at base of second posterior cell; infuscation in ♀♀ similarly extending across to middle cross vein, but considerably beyond it to nearly or to about end of discoidal cell and then indistinctly more or less straight across first vein a little beyond end of false vein, with a backward extension of main infuscation along apical vein of discoidal cell or as in ♂♂ with only an isolated cloud or spot at base of second posterior cell and sometimes with indications of or distinct spots at bases of apical two cells as well; sides of anterior part of frons, sides below antennae and less extensive sides or only extreme sides of face yellowish or yellowish red. 123
- (b) Dimidiate infuscation in wings of ♂♂ similar except that it extends slightly farther beyond middle cross vein and across to second vein at about or even beyond middle of enclosed submarginal cell and rarely without a constant and larger spot or cloud at base of second posterior cell; infuscation in ♀♀ also very similar, but usually slightly more extensive and always reaching base of submarginal cross vein and with a broader diffuse backward extension across apical part of discoidal cell and along vein dividing it from second posterior cell and at base of the latter cell, this infuscation not isolated or cut off from main infuscation, and also with or without spot-like indications at bases of two apical cells; anterior part of frons and sides of face more extensively reddish to a variable extent, the face sometimes entirely reddish or the black on disc more reduced. 124
123. (a) Legs appearing darker, more yellowish brown to brown; black on face above more extensive; spot at base of second posterior cell in wings in ♂ more often absent or very faint and without an indication of a faint spot on basal cross vein of normal second submarginal cell; infuscation in wings in ♀ scarcely or more often not extending to base of submarginal cross vein and spot or cloud at base of second posterior cell usually smaller and without faint spots at bases of apical two cells; larger form, reaching a length of 18 mm., with wings up to 18 mm.
♂ ♀ Namaqualand and Western form of *heros* (Wied.) (p. 822)
- (b) Legs appearing much paler yellowish; black on face usually more reduced, the sides of face more extensively yellowish or reddish; spot at base of second posterior cell

in ♂ always indicated or present and more often with a very faint spot on basal cross vein of second submarginal cell; infuscation in ♀ slightly more extensive, extending to base of submarginal cross vein and spot or cloud at base of second posterior cell usually larger or not separated from main infuscation, and in addition with distinct, though faint, spots or clouds at bases of two apical cells; rarely large forms, usually only about 9-11½ mm. long, with wings about 10-12½ mm. long.

♂ ♀ Karoo form of *heros* (Wied.) (p. 822)

124. (a) Anal and axillary cells less infuscated, imperceptibly becoming less infuscated or more hyaline towards apices or beyond middle, the cloud or spot at base of second posterior cell, in ♂ especially, usually smaller, always isolated in ♂, and spots at bases of two apical cells absent or fainter, always absent in ♂; apical part on sides of tergite 2 and also sides below of rest of tergites black-haired or with fewer golden ones; pleural parts usually with fewer or less dense dark or black hairs. . . . 125

- (b) Anal and axillary cells distinctly darker, more infused, even to near apices, the cloud or spot at base of second posterior cell larger in both sexes, even extending down bounding veins of latter cell in ♀, sometimes tending to be jointed on to main infuscation by a fuscous border along apical part of upper vein of discoidal cell in ♂ as in ♀, and with the spots at bases of apical cells more evident (these veins sometimes bordered with fuscous in ♀), also indicated in ♂; apical part on extreme sides of tergite 2 and sometimes on sides below on some of the others, especially in forms with more yellowish hairs on pleurae, with more or more conspicuous reddish golden hairs; pleurae usually with more extensive dark hairs.

♂ ♀ montane form of *heros* (Wied.) (p. 822)

125. (a) Anterior half of frons and the face, even if entirely reddish, entirely black-haired or with only a very few golden ones intermixed on sides below antennae; mesopleuron usually with some or a few intermixed dark hairs and hairs on pleurae and collar more yellowish to straw-coloured yellowish; hairs on sides of abdomen relatively longer; tergites 4 and 5 with less whitish and more yellowish scaling and that across hind border of white basal band paler yellowish; infuscation in wings more smoky brownish or yellowish brown, the spot at base of second posterior cell in ♂ more distinct; squamal fringe more often darker or black.

♂ ♀ slight form of *heros* (Wied.) (p. 822)

- (b) Anterior half or more of frons and entire face pale reddish yellow, yellow-scaled and with reddish golden hairs on sides of frons and down entire face (excepting only black tuft at apex), or at least with relatively few intermixed dark ones discally; mesopleuron without any dark hairs, but with more intermixed fulvous or reddish golden ones, those on upper pleural parts and in collar gleaming slightly deeper golden; hairs on sides of abdomen shorter, sometimes with more golden ones intermixed; yellowish scaling on abdomen above deeper yellowish or more ochreous, the white bands showing up more conspicuously; infuscation in wings sometimes darker, more coffee-brownish, without a distinct or only a feeble spot at base of second posterior cell in ♂; squamal fringe pale. . . . ♂ ♀ of a North-western form of *heros* (Wied.) (p. 822)

126. (a) Infuscation in wings darker, more brownish, well defined, extending in ♂♂ from basal part across base of fourth posterior cell for some distance beyond middle cross vein and then across basal third or basal half of enclosed submarginal cell to opposite end of false vein, usually with a distinct or even conspicuous spot at base of second posterior cell; infuscation in ♀♀ also more extensive, extending to much beyond middle cross vein and nearer apex of discoidal cell and across more than basal half of enclosed submarginal cell to end of false vein and either with a backward extension as a fuscous border along apical part and apical vein of discoidal cell to a larger cloud at base of second posterior cell, or with a larger isolated cloud at base of latter cell, and sometimes also with faint spots at bases of two apical cells; pleurae, especially mesopleuron sternopleuron and propleural tuft, with distinctly more numerous black hairs; anterior part of frons or sides of frons more broadly and entire or greater part of face, or its sides more extensively, reddish. . . . 127

- (b) Infuscation in wings paler, fainter brownish or more greyish brownish, more faintly indicated and less extensive, that in ♂ extending to only a little beyond middle cross

vein and then across only the extreme basal part of enclosed submarginal cell, without any distinct spot at base of second posterior cell; infuscation in ♀ much less extensive, more like that of ♂, extending to scarcely half distance beyond middle cross vein and then across only about basal half or even less of enclosed submarginal cell, without any spots at bases of apical cells and with only a faint isolated cloud or spot at base of second posterior cell; pleurae with a tendency to have fewer black hairs; anterior part of frons and at least basal discal part of face black or greater part of latter sometimes dark. . . . ♂ ♀ *eluta* Lw. (p. 827)

127. (a) Dimidiate infuscation in wings of ♂ distinctly less extensive, crossing distinctly less than basal half of enclosed submarginal cell and without any or with only a faint spot at base of second posterior cell; infuscation in ♀ also less extensive, crossing at only about half of enclosed submarginal cell and with spot at base of second posterior cell usually smaller; basal parts of anal and axillary cells in both sexes distinctly less extensively, more faintly, infuscated; apical vein of discoidal cell relatively shorter; entire sternites 4 and 5 dark-scaled; yellowish scaling on head in front less dense; middle part of frons in front and discal part of base of face black. . . . ♂ ♀ form of *eluta* Lw. (p. 827)

- (b) Dimidiate infuscation in ♂♂ distinctly more extensive, crossing at least basal half of enclosed submarginal cell and with a more distinct or even larger spot at base of second posterior cell; infuscation in ♀♀ also more extensive, crossing at distinctly more than or much more than basal half of enclosed submarginal cell and with the cloud at base of second posterior cell much larger, sometimes extensive, extending hook-like along apical veins of discoidal cell; basal parts of anal and axillary cells (or the entire cells) in both sexes usually more extensively or more uniformly infuscated; apical vein of discoidal cell relatively longer, the apical part of cell slightly more produced; sternites 4 and 5 less extensively and usually not entirely dark-scaled and, if extensive, infuscation in wings more extensive and darker; yellowish scaling on head in front denser; head in front either with entire frons dark or frons in front and entire or greater part of face reddish or yellowish or at least more extensively reddish and, if with middle part of frons anteriorly and disc of face black, other characters do not differ. . . . 128

128. (a) Base of tergite 2 with a conspicuous broadish band of white scales; pleurae on the whole with fewer black hairs and scales, the propleural tuft anteriorly below with relatively fewer black hairs and hind part of metapleural tuft with fewer dark hairs if not entirely pale; hairs and scaling on coxae usually not entirely black and, if so, tergite 2 with a white band; tuft on each side at base of abdomen white and hairs in collar, upper part of mesopleural tuft more whitish, straw-coloured yellowish or at least not deep or orange yellowish; infuscation in wings more extensive in ♀♀, the infuscation extending along apical veins of discoidal cell as a hook-like backward extension, forming a larger cloud at base of second posterior cell; front half or less or only sides anteriorly of frons reddish; sides of abdomen not or less broadly reddish. . . . 129

- (b) Base of tergite 2 without any white band or with much fewer pale scaling; pleurae with more numerous or more extensive black hairs and scales, the propleural tuft below with a much denser and more extensive tuft of black hairs and greater hinder part of metapleural tuft black; hairs and scaling on coxae entirely and densely black; tuft on sides of tergite 1 orange yellowish and hairs in collar anteriorly and upper part of mesopleural tuft deeper yellowish or more orange; infuscation in wings reddish brownish, relatively less extensive in both sexes, not extending around apex of discoidal cell and with the cloud at base of second posterior cell smaller, isolated in both sexes; greater part or more than front half of frons reddish like the face; sides of abdomen much broader reddish. . . . ♂ ♀ *damarensis* n. sp. (p. 827)

129. (a) Infuscation in wings darker, more blackish brown or almost black, occupying more or less uniformly entire anal and axillary cells; squamal fringe dark or black; knobs of halteres dark or usually more darkened above; scaling on coxae and hairs and scaling on sternum not entirely black, at least with some or numerous pale or yellowish ones. . . . 130

- (b) Infuscation in wings more reddish brownish or smoky brownish, occupying only bases or basal parts of anal and axillary cells, these cells becoming almost clear apically or even more than apical half or greater part of axillary lobe sometimes clear; squamal fringe paler or even whitish; knobs of halteres paler, more yellowish or whitish above; hairs and scales on coxae and on sternum entirely, mainly or conspicuously dark or black. 131
130. (a) Wings more greyish hyaline, the infuscation more smoky brownish, more diffused, less well marked off and more extensive, especially in ♀, in which it extends as a fuscous border along veins in apical part of discoidal cell and even down veins bounding second posterior cell; cloud at base of latter cell larger, more diffuse; basal veins of two apical cells with spots or even fuscous borders, especially in ♀; upper part of mesopleural tuft entirely pale, straw-coloured or whitish or yellowish; propleural tuft usually with more dark or black hairs below; scaling on head in front mainly greyish yellowish or yellowish; scaling on abdomen, other than white bands, also with extensive yellowish ones; scaling on legs gleaming more greyish or with more greyish or yellowish ones as well as dark ones; frons in front and face on sides or even discally more extensively reddish or with less black.
- ♂ ♀ montane form of *heros* (Wied.) (p. 822)
- (b) Wings more glassy hyaline, the infuscation darker, very dark blackish brown or black, well demarcated, slightly less extensive, even in ♀, in which the fuscous backward extension along apical part and apical vein of discoidal cell is well marked off, hook-like, less diffuse; cloud at base of second posterior cell less diffuse, more well marked off in both sexes; basal cross veins of apical cells in both sexes without any spots or infusions; upper part of mesopleural tuft with dense or numerous black hairs intermixed; propleural tuft usually with fewer or even without dark hairs below; scaling on head in front with much or even extensive black ones; scaling on legs gleaming more black or with more extensive dark scales; frons in front and face above usually more extensively black or mainly dark.
- ♂ ♀ form *litoralis* n. of *heros* (Wied.) (p. 825)
131. (a) Front half of frons and entire or greater part of face reddish and entire head in front with yellowish or brassy yellowish scaling; legs paler, more yellowish brownish under dark scaling, with more pale ones also present; tergites 2 and 3 usually with more reddish on sides; sternites with distinct and even broadish reddish hind margins; scaling on thorax above mainly in streaks of yellowish and brownish ones; hairs and hair-like scales on meso- and sternopleurae also with numerous or more numerous yellowish, golden, or fulvous ones; sternites 4 and 5 less extensively black-scaled, only at middle; infuscation in wings more brownish, the veins more reddish or reddish brown and with more yellowish scales on basal comb.
- ♂ ♀ form *protuberans* Bezz. of *heros* (Wied.) (p. 825)
- (b) Greater middle part of frons anteriorly and medial discal part of face, or entire frons and face above, dark or black to a variable extent and interantennal part and disc of face usually with dark or black scaling; legs darker or black, black-scaled; sides of abdomen entirely black or with only obscure reddish on sides of tergites 2 and 3; sternites entirely black or with more obscure and narrower reddish hind margins; scaling on thorax above mainly black or with less distinct streaks of pale ones; hairs and intermixed hair-like scales on meso- and sternopleurae mainly or entirely black; sternites 4 and 5 more extensively black-scaled across entire or almost entire basal halves; infuscation in wings darker, more smoky brownish, the veins darker and with black scales on basal comb.
- ♀ form *melanthia* n. of *heros* (Wied.) (p. 826)
132. (a) Front half or at least sides anteriorly of frons and the face or greater part on sides of face reddish; greater part of collar, humeral tuft, greater part of upper part of mesopleural tuft and greater part of or anterior part of metapleural tuft straw-coloured, yellowish, to golden yellowish, and all or more numerous on hairs sides apically of tergite 1 whitish; band of white scaling across tergite 3 tending to be less interrupted or to be continuous discally and usually with some white scales on sides of 4; scaling on thorax above usually with streaks of paler ones; spot or cloud at base of second posterior cell usually also present in ♂, and in ♀ it tends to be larger.
- ♂ ♀ *monticola* n. sp. (p. 828)

- (b) Entire frons and discal part of face or at least greater discal part of frons and more extensively down sides of face black; greater part of collar behind, humeral tuft, greater part of or even entire mesopleural tuft, entire metapleural tuft and hairs apically on sides of tergite 1 black, the yellowish hairs on these parts, if present, distinctly fewer, and the mesopleural parts being mainly black-haired; band of white scaling on tergite 3 usually represented only as a conspicuous white patch on sides, and sides of 4 usually black-scaled like the greater discal part; scaling on thorax and scutellum above mainly dark; spot at base of second posterior cell more often entirely wanting in ♂ or very inconspicuous, and even in ♀ less extensive.
 ♂ ♀ *atrata* n. sp. (p. 830)
133. (a) Head in profile with a distinct transverse depression just in front of or between antennae, the face thus appearing divided from frons as if slightly more tilted up, slightly more pyramidal; wings (pl. ii, fig. 9) with a characteristic infuscation in which more than anterior half from level of bases of the three posterior cells (three large confluent clouds) to anterior margin, and apically from apical part of discoidal cell obliquely across marginal cell to opposite level of false vein, is dark brownish or blackish brown, but with an indentation in its apical margin in enclosed submarginal cell, with a large medial clear spot in second basal cell, another clear spot in basal half of discoidal cell and another one in apical half of the same cell, with dark spots at bases of apical two cells which are sometimes confluent with the main anterior infuscation in marginal cell and also with each other, and with the greater part of anal cell and entire axillary lobe however clear hyaline like apical and hinder parts of wings; scales on front half of frons and on discal basal part of face brilliantly silvery whitish; hairs on sides of abdomen very short, poorly developed.
 ♂ ♀ *triloculina* n. sp. (p. 846)
- (b) Head in profile straighter, without any distinct, or with only a slight, transverse depression in front or or between antennae, the face thus not so distinctly divided from frons, not so tilted up; wings with a different pattern, either more or less dimidiately infuscated or with a spotted appearance, due to spots on all or on most of the cross veins and bifurcations in addition to main anterior and basal infuscation, the clear parts more greyish hyaline or even tinged slightly smoky; scales on head in front not brilliantly silvery; hairs on sides of abdomen longer, denser, well developed.
 134
134. (a) Wings rather narrowish, dimidiately infuscated from about middle of anal cell obliquely and irregularly across to base of submarginal cross vein and into marginal cell to end of costal cell, the clear parts tinged smoky greyish, without any darker spots or clouds showing up on middle cross vein and bases of third and fourth posterior cells, but with an infuscation on apical cross vein of discoidal cell and two spot-like infuscations at bases of apical two cells; middle cross vein much before middle of discoidal cell; sides of tergites 1-3 either entirely white-haired or with numerous white hairs; tergites 4 and 5 discally mostly with dark or black scales.
 ♂ ♀ *infumata* Bezz. (p. 830)
- (b) Wings relatively broader, less distinctly or sharply dimidiately infuscated in basal and anterior parts, with the anal and axillary cells more infused or tinged and the cross veins (bases of third and fourth posterior cells and middle cross vein) along margin of anterior infuscation with distinctly darker, more conspicuous clouds or spots and in addition with spots or infusions also at bases of apical cells, along apical vein of discoidal cell, at base of second vein, at base of discoidal cell and sometimes even at end of anal cell, with the clear parts tinged more greyish or less darkly; middle cross vein at about or nearer middle of discoidal cell; sides of only tergite 1 and base of 2 white-haired; tergites 4 and 5 with more complete bands of pale scaling or with more yellowish scales discally.
 135
135. (a) Head in profile more convexly rounded, the face distinctly longer, only a little shorter than postantennal distance to ocellar tubercle; style of antennal joint 3 short, not or scarcely much longer than joint 2; wings with the basal and anterior infuscation slightly more extensive, extending farther down anal cell and to quite middle of first posterior cell and apicalwards to base of submarginal cross vein, with a tendency for infuscation along apical vein of discoidal cell to be confluent with anterior infuscation,

without a spot near end of anal cell; discoidal cell more produced apically, not truncate, its apical vein more distinctly S-curved, less oblique to hind margin; hair on pleurae, metapleural tuft and on venter mainly pale or yellowish to straw-coloured, and bands of pale scaling across tergites tending to be more bisinuate. 136

- (b) Head in profile not convex, straight or even slightly depressed just in front of antennae, the face much shorter, very much shorter than postantennal distance to ocellar tubercle; style longer, much longer than antennal joint 2, quite half length of joint 3; wings with the infuscation less extensive, usually less uniform, not extending much down anal cell and extending apicalwards to only base of first posterior cell and across to marginal cell a good distance away from submarginal cross vein, with infuscation along apical vein of discoidal cell isolated, with sometimes a distinct spot or cloud near end of anal cell; discoidal cell slightly bulb-shaped apically, truncate, its apical vein straight or slightly curved inwardly, more oblique or subperpendicular to hind margin; hair on pleurae and venter entirely or predominantly black and, if pale, other characters do not differ, and bands of pale scaling across tergites straighter. 137
136. (a) Legs very dark blackish brown or black; face with less red on sides below antennae and around and between antennal bases; hind margins of tergites not or only obscurely reddish, sides of 2 and 3 not or only feebly reddish and hind margins of sternites more narrowly reddish; apical vein of discoidal cell straighter. ♂ ♀ *porrectella* n. sp. (p. 777)
- (b) Legs paler, very pale yellowish; face with more extensive red on sides below antennae and around and between antennal bases; hind margins of tergites more broadly red, sides of 2 and 3 with more extensive red and hind margins of sternites very broadly reddish; apical vein of discoidal cell slightly more sinuous. ♂ ♀ var. of *porrectella* n. sp. (p. 778)
137. (a) Hair on pleurae, metapleural tuft and on venter entirely or predominantly black and scaling on body below, on venter and legs dark or black; wings with the infuscation darker, dark blackish brown to black, the veins darker or black, the clearer parts tinged more smoky or greyish, the spots and clouds on cross veins darker, larger, more conspicuous and if indistinct or obscure hair on pleurae at least black, a spot sometimes also present near end of anal cell; style of antennal joint 3 relatively shorter, much less than half length of joint which itself is relatively longer; face distinctly longer, the slight depression across its base more evident. 138
- (b) Hair on pleurae, metapleural tuft and on at least basal half of venter entirely or predominantly yellowish and scaling on body below and on venter mainly yellowish, and whitish, that on legs with more yellowish ones or mainly yellowish; wings with infuscated base and anterior part reddish brownish and the veins also more reddish brown, the clearer parts tinged slightly less greyish, the spots or infusions on cross veins and bifurcations smaller, fainter, indistinct, the two at bases of apical two cells very indistinct, scarcely indicated, without any spot near end of anal cell; style relatively longer, quite half or only a little shorter than half length of joint 3 which itself is less elongate; face markedly shorter, its base with scarcely an indication of a slight transverse depression. ♂ ♀ *obscurinotata* n. sp. (p. 849)
138. (a) Wings with the basal and anterior infuscation less intense and uniform, showing slightly clearer areas at base of marginal cell, in second basal cell and base of discoidal cell, and anal cell less darkly tinged basally; spots or clouds on cross veins and bifurcations larger, more distinct and conspicuous and more often with a spot near end of anal cell; scutellum more extensively reddish; margin of face slightly more broadly yellowish; basal joints of antennae on the whole paler; upper part of mesopleural tuft without any or with fewer yellowish hairs. ♂ ♀ *balioptera* Lw. (p. 847)
- (b) Wings with the basal and anterior infuscation more intense and uniform, not or scarcely less infuscated at base of marginal cell and middle parts of second basal cell and base of discoidal cell, and anal cell also more tinged; infusions on cross veins distinctly smaller or fainter, the two at bases of apical two cells being scarcely indicated or very indistinct and without a spot near end of anal cell; scutellum darker, obscurely reddish only apically; basal joints of antennae darker or black; upper part of mesopleural tuft with more yellowish bristles. ♀ var. of *balioptera* Lw. (p. 849)

139. (a) Infuscation in wings (pl. ii, fig. 5) more *Litorrhynchus*-like, uniformly dark blackish brown to black, the basal half of first basal cell, greater part of second basal cell, basal half of anal cell and basal half of axillary lobe not yellowish or clear, the clear indentation at middle extending to near or up to upper vein of discoidal cell and the second narrower dark band not reaching hind margin; entire frons and greater discal part of face black; abdomen above entirely black or only with obscure or less extensive reddish on sides of tergites 2 and 3; hairs on entire head in front black and with much or numerous black ones also on mesopleuron, in propleural tuft and on prosternum, those on venter mostly gleaming golden; scaling on abdomen above with more black or dark ones, the white ones tending to be more concentrated as transverse patches on sides of tergites and, if white bands are complete, they are only found across 4, 6 and 7; abdomen relatively broader, more ovate, or even more broadened posteriorly.
 ♂ ♀ *hamata* (Macq.) (p. 820) 140
- (b) Infuscation either not *Litorrhynchus*-like, consisting of a dark or yellowish basal part and a diffuse infuscation of variable extent from near end of costal vein obliquely across to base of fourth posterior cell or apex of anal cell, separated from base by a broad clear or faintly yellowish-tinged clear band across basal half of first basal cell, entire or greater part of second basal cell and entire or more than basal half of anal cell, or if *Litorrhynchus*-like and with a broad clear indentation at middle the infuscation consists of yellowish or faintly yellowish and brownish bands; front half of frons or entire frons and face yellowish or reddish yellow; abdomen above, especially in ♂♂, with broader, more extensive red on sides of tergites 2 and 3 and usually with reddish or broadly reddish hind margins; hairs on frons in front or at least on greater part of face and sides of face yellowish or golden and those on pleurae and venter entirely very pale, yellowish or whitish to entirely white; scaling on abdomen above and usually also on rest of body above with fewer dark ones, but with more yellowish, ochreous yellowish or whitish ones, the yellowish or whitish ones usually in complete and conspicuous transverse bands across most or all of the tergites; abdomen usually more pointed posteriorly, sometimes conspicuously so. 140
140. (a) Wings with the first dark band or infusion beyond clear or yellowish-tinged second basal cell and across basal part of discoidal cell and bases or basal veins of third and fourth posterior cells broader, more distinct and reaching hind border across apical part or apical half of anal cell, and usually also with a second dark band or infusion from anterior infused part across apical part of discoidal cell in both sexes; scaling on thorax above predominantly pale, yellowish or ochreous yellowish, without any or with much fewer dark ones or streaks of dark ones and that on head in front gleaming more golden or deeper yellowish. 141
- (b) Wings with the first dark band much fainter, more diffuse, much narrower posteriorly, not extending beyond basal cross veins of third and fourth posterior cells, thus leaving apical parts of anal and axillary cells entirely clear and even in ♀♀ without a distinct second dark band across apical part of discoidal cell, at most only with a slight infuscation along apical cross vein of discoidal cell; scaling on thorax above with more dark ones in streaks in addition to pale ones and that on head in front gleaming more whitish or white. 143
141. (a) Entire head, excepting black eyes and darkish vertex, reddish and sides and base of thorax, entire scutellum, entire or greater part of pleurae and legs pale or yellowish reddish or red, the hind margins of tergites even in ♀ more broadly reddish; scaling on head in front more whitish, that on thorax above also more whitish or creamy whitish; hairs in collar, mesopleural tuft and pleurae more uniformly straw-coloured, sericeous or paler yellowish; wings with the darker bands more yellowish brown, the first band relatively broader, more extensive posteriorly, occupying at least or almost basal half of fourth posterior cell and nearly apical halves of anal and axillary cells, the clear indentation at middle less clear-cut and more narrowed across lower vein of discoidal cell; discoidal cell distinctly more produced and acute apically, its apical vein more distinctly S-curved, relatively longer, its lower vein more roundly bent outwards and the middle cross vein tending to be at about or a little beyond middle of discoidal cell; abdomen relatively broader, more rounded posteriorly, with

more black hairs on sides of tergite 3, relatively shorter hairs on its sides and on venter; larger form, about 15½–22 mm. long and its wing about 17–23 mm. long.

♂ ♀ *mozambica* n. sp. (p. 788)

- (b) Entire head and sides of head not reddish and sides of thorax and entire pleurae not reddish, the legs black or very dark and in ♀♀ the hind margins or sometimes even sides of tergites 2 and 3 not so extensively reddish; scaling on head in front deeper yellowish or deep golden, that on thorax above deeper yellowish to ochreous; hairs in collar and in upper part of mesopleural tuft deeper yellowish to deep golden, contrasting with the whiter or snow-white hairs on lower parts of pleurae and venter; wings with the darker bands darker brownish, the first band relatively narrower, relatively less extensive posteriorly, occupying less than basal half of fourth posterior cell, the clear indentation at middle more sharply defined, more clear-cut, less narrowed across lower vein of discoidal cell; discoidal cell distinctly less produced apically, its apical vein straighter or much less S-curved, relatively shorter, its lower vein distinctly less outwardly bent and the middle cross vein at about or slightly before middle of discoidal cell; abdomen relatively narrower, more pointed posteriorly, without any or with much fewer dark hairs on sides medially of tergite 3, relatively longer ones on sides and on venter; slightly smaller forms, usually less than 19 mm. long.

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142. (a) Wings with two broadish well-defined dark brownish cross bands in ♀ of which the second one is not much narrower than first and reaches the hind margin, occupying at least basal half of second posterior cell; in ♂ with the second band narrowed posteriorly and not reaching hind margin; middle clear indentation in both sexes extending beyond discoidal cell into base of first posterior cell; discoidal cell less broadened apically, its apical vein straighter or straight; first posterior cell less rapidly narrowed apically; abdomen narrower, with uniform ochreous yellowish scaling above in both sexes, without any white ones even on sides, the bands of black ones across hind margins of tergites very much narrower or scarcely evident; hairs on sides less dense, mostly yellowish, the black ones fewer; style of antennal joint 3 relatively shorter, only about or less than half length of joint; middle and hind legs with fewer spines and spicules, the spicules on outer part of hind tibiae less dense and less numerous.

♂ ♀ *perpulchra* Bezz. (p. 790)

- (b) Wings with only the first brownish band in ♀ broadish and well defined, the second one faint, diffuse, ill-defined, much narrower posteriorly where it is confined to extreme base of second posterior cell, scarcely extending beyond and not reaching hind margin, entirely wanting and not indicated in ♂; middle clear indentation extending only to upper vein of discoidal cell; discoidal cell slightly more broadened apically, its apical vein more sinuous; first posterior cell distinctly more rapidly narrowed, though also broadly open; abdomen broader, but more pointed apically, with the scaling in ♂ in form of broadish white or whitish bands across tergites and black bands across hind margins and in ♀ with yellowish or ochreous bands and black bands, with some white scaling on extreme sides of tergites in ♀; hairs on sides of abdomen relatively denser, mostly black or with more black ones on sides of tergites 3–7; style relatively longer, longer than half length of joint 3, sometimes equal or subequal to joint; middle and hind legs with more numerous and denser spines and spicules, those in outer upper aspect of hind tibiae distinctly denser and more numerous.

♂ ♀ *nova* Ric. (p. 791)

143. (a) Greater part of costal cell, greater part or at least basal half of first basal cell and to a large extent base of marginal cell clearer, more whitish or faintly tinged yellowish whitish, not darker than second basal cell, the infuscated band from opposite end of false vein in costal cell obliquely across basal half of discoidal cell to base of fourth posterior cell darker, more distinct, more uniform and well defined, the wings thus appearing more banded; bands of pale scaling across tergites more intensely white.

♂ ♀ *nuragasana* n. sp. (p. 793)

- (b) Base, costal cell, first basal cell and even base of marginal cell more infuscated, more yellowish or brownish or reddish brown, at least distinctly darker or more tinged than second basal cell, the infuscated band or infusion from opposite end of false vein

obliquely across to base of fourth posterior cell distinctly much fainter, less evident as a band-like infusion, the wings thus without a banded appearance; bands of pale scaling across tergites more greyish or greyish yellowish than whitish and, if white, wing-characters do not differ. . . . 144

144. (a) Abdomen extensively reddish on sides, especially on tergites 2 and 3, but sometimes broadly along entire sides even in ♀♀, with the hind margins of tergites broadly reddish, posterior segments often extensively or entirely reddish; venter entirely reddish or with broad reddish hind margins; bands of pale scaling across tergites more creamy yellowish to greyish yellowish or even yellow; hairs across hind margin of last sternite in ♀♀ pale; metapleural tuft more whitish or pale yellowish; spot-like infuscation at bases of third and fourth posterior cells darker, larger, more conspicuous and apical vein of discoidal cell and bases of apical two cells with more distinct or even conspicuous spot-like infuscations; knobs of halteres pale or yellowish. . . . 145
- (b) Abdomen less extensively reddish on sides in ♂, entirely or predominantly black in ♀, without any reddish on sides in ♀, the hind margins of tergites and sternites not or scarcely reddish in ♀ at least; bands of pale scaling across tergites distinctly and strikingly white; hairs across hind margin of last sternite in ♀ black; metapleural tuft as well as upper part of mesopleural tuft and to a certain extent collar more fulvous yellowish; spots at bases of third and fourth posterior cells smaller and without any distinct infuscation at apex of discoidal cell and bases of apical two cells; halteres and their knobs brown. . . . ♂ ♀ *albata* Bezz. (p. 796)
145. (a) Legs black and frons reddish to a variable extent to vertex; red on sides of abdomen slightly less extensive, not so extensively developed on sides of tergites 4 and 5; hairs in collar above, upper part of mesopleural tuft more yellowish and black hairs on sides of abdomen more confined to hind margins of tergites, the basal parts on sides with whitish or sericeous yellowish hairs; scaling on abdomen above composed of conspicuous broadish bands of creamy yellowish ones across bases of tergites 3-6, entire 7 and across middle of 2 and bands of black ones across hind margins; anterior infuscation in wings slightly paler, more yellowish or yellowish brown, also slightly less extensive, occupying less than basal half of enclosed submarginal cell, fading out before end of false vein; discoidal cell distinctly less depressed above, more sharply acute apically and the middle cross vein more often before middle of the cell; style of antennal joint 3 relatively longer, more slender, at least two-thirds length of or even as long as joint. . . . ♂ ♀ *major* Ric. (p. 794)
- (b) Legs yellowish reddish, the tibiae sometimes slightly darker and frons dark or black in basal half; red on sides of abdomen extensive along entire sides; hairs in collar and mesopleural tuft more straw-coloured and sides of abdomen beyond apex of tergite 2 entirely or predominantly black-haired; scaling on abdomen above mostly creamy yellowish to yellowish, slightly more whitish on sides, not in conspicuous, well-defined transverse bands, the black scaling arranged more medially and discally across bases of tergites; anterior infuscation in wings darker, more blackish brown, well defined, slightly more extensive and broader apically where it occupies marginal cell to even slightly beyond end of false vein and more than half of enclosed submarginal cell; discoidal cell distinctly more depressed above, more subacute apically and the middle cross vein usually tending to be slightly beyond middle of the cell; style shorter, slightly stouter, less than two-thirds length of joint. . . . ♂ ♀ form of *stannusi* Bezz. (p. 797)
146. (a) Face very distinctly divided from frons by a deepish, distinct, conspicuous, transverse depression just in front of antennae, the face itself more conically pyramidal and integument of both frons and face more shining; style of antennal joint 3 very short, only about as long as antennal joint 2, joint 3 itself elongate, slender, more rod-like; wings with an anterior and basal blackish brown infuscation, extending from about basal third of anal cell irregularly in more or less three steps (one at apex of second basal cell, the second at end of first basal cell and third at origin of submarginal cross vein) to near end of costal cell, with a small spot at base of submarginal cross vein which is confluent with anterior infuscation and with a slight spot-like infuscation on basal cross vein of third posterior cell; third posterior cell considerably shorter than

fourth posterior cell, its base considerably removed from base of fourth posterior cell and much nearer middle of latter cell; base of third posterior cell also with a short stump projecting into discoidal cell; first posterior cell very much narrowed and subacute apically; second posterior cell very broad apically, as broad as third posterior cell; entire body, scutellum and legs black.

♀ *trigradata* n. sp. (p. 853)

- (b) Face not or not distinctly divided from frons by a distinct transverse depression, the face normally conical; style usually longer or much longer than antennal joint 2 and, if as long, face is not divided from frons, the third joint too is more conical or elongate-conical; wings with a different pattern and, if anterior and basal infuscation has an irregular margin, this is usually not so regularly trigradate; third posterior cell relative to fourth much longer, only a little shorter than latter and, if much shorter, its base is still much before middle of fourth posterior cell and is not bent at right angles; basal cross vein of third posterior cell usually without a stump; first posterior cell even if much narrowed not acute apically; second posterior cell relatively narrower on hind margin, narrower than and rarely as broad as third posterior cell; body more often with red or yellow on head, scutellum or abdomen and, if entirely black, face not divided from frons. 147
147. (a) Wings sharply and darkly dimidiately infuscated, the basal and anterior infuscation very dark blackish brown to black, occupying and extending from at least basal half of axillary lobe or basal half of anal cell obliquely either straight across or irregularly across towards end of costal cell and sharply delimited from the hyaline apical and hinder parts; darker spot-like infusions or clouds on cross veins within the infuscated parts or in hyaline parts not evident; head in front more often with brilliant silvery scales, especially on sides of face, and in ♂♂ the head in front and posterior part or sides of abdomen often with specially modified very brilliant silvery scales. 148
- (b) Wings with the anterior and basal infuscation, if sometimes more or less dimidiately, usually less dark, more diffuse, less sharply delimited from hyaline or less tinged parts, sometimes entirely tinged or infused and, if anterior infuscation is well marked off, entire or greater part of anal and axillary cells is hyaline or clearer and often even entire or greater part of second basal cell is clear; darker spot-like infusions within infuscated part, especially at bases of third and fourth posterior cells and on middle cross vein rarely not evident and sometimes also with indications of spots in the hyaline parts on apical vein of discoidal cell and at bases of apical two cells; head in front and abdomen usually without specially modified brilliant silvery scales. 149
148. (a) Infuscation in wings slightly more extensive, its margin very irregular, with much deeper indentations and distinct extensions, projections or prolongations opposite base of fourth posterior cell and across apical part or apex of discoidal cell to a variable extent, and the infuscation usually truncate apically in marginal cell opposite level of end of false vein in costal cell and base of submarginal cross vein; middle cross vein much before middle of discoidal cell; discoidal cell slightly less pointed and more subtruncate apically, its upper vein less convexly curved apically; abdomen, especially in ♂♂, with a pattern of black, yellowish and white or whitish scales, usually arranged in regular bands, with longish scales in tufts on sides among the hairs in both sexes. 157
- (b) Infuscation in wings less extensive, its margin straight or distinctly less irregular, with only slight or shallow indentations and if with slight steps or extensions these do not project prominently at base of fourth posterior cell and across apical part of discoidal cell, the infuscation itself ends acutely and not broadly or truncately apically in marginal cell opposite level of end of false vein, crossing second vein a good distance before base of submarginal cross vein; middle cross vein nearer middle or even at about middle or even slightly beyond middle of discoidal cell; discoidal cell usually slightly more pointed apically, its upper vein more convexly curved apically; abdomen with a pattern of mostly white and black scales arranged in more regular transverse bands and with relatively much shorter scales among the hairs on sides. 152
149. (a) Infuscation in wings slightly more extensive, the infuscation in enclosed submarginal cell extending slightly farther apically to at least opposite or even slightly beyond level

- of apex of discoidal cell, leaving a distinctly smaller apical area in enclosed submarginal cell hyaline, with or without a backward hook-like extension or prolongation of variable extent across apical part of discoidal cell in ♂♂ and with a distinctly broader and slightly longer extension across apical part of same cell in ♀♀, and also with more extensive infuscation in base of fourth posterior cell in both sexes; venter, especially in ♂♂, with more dark scaling along middle; frons and last two tergites in ♂♂ with or without brilliant silvery scales. 150
- (b) Infuscation slightly less extensive in enclosed submarginal cell, distinctly shorter in this cell, extending to a point just a little short of apex of discoidal cell in ♀ and much shorter in ♂, leaving a distinctly larger apical area in this cell hyaline, without a backward extension across apical part of discoidal cell in ♂ and with a distinctly narrower and slightly shorter, more pointed, extension across apical part of same cell in ♀, with distinctly less extensive infuscation in base of fourth posterior cell in both sexes; venter entirely pale-scaled or with fewer dark ones along middle in both sexes; frons and last two tergites in ♂ with brilliant silvery scales. 150
- ♂ ♀ *scalaris* Bezz. var. of *argentifrons* Macq. (p. 852)
150. (a) Infuscation in wings in ♂ (pl. ii, fig. 10) with a distinct and conspicuous hook-like backward extension across apical part of discoidal cell. 151
- (b) Infuscation in wings in ♂ without or with a scarcely indicated projection across apical part of discoidal cell. ♂ var. of *argentifrons* Macq. (p. 850)
151. (a) Frons and base of face in ♂ with a dense patch of brilliant silvery scales and last two tergites in ♂ also with very brilliant silvery scales; style of antennal joint 3 usually shorter or much shorter than joint itself; base of fourth posterior cell slightly less infuscated and hook-like projection across apex of discoidal cell narrower, falling far short or at least not reaching lower apical angle of discoidal cell. 150
- ♂ ♀ *argentifrons* Macq. (p. 850)
- (b) Frons and base of face in ♂ without a patch of silvery scales and last two tergites in ♂ also without brilliant silvery scales; style of antennal joint 3 subequal, as long as, or even a little longer than joint; base of fourth posterior cell slightly more extensively infuscated and hook-like projection across apex of discoidal cell broader, reaching lower apical angle of discoidal cell. ♂ *scaligera* Bezz. (p. 852)
152. (a) Axillary lobe also more or less extensively infuscated in its basal half or at its base like rest of basal and anterior dimidiate infuscation in wings; discoidal cell more distinctly and markedly depressed anteriorly just beyond middle cross vein, the cell thus more dilated or broadened apically, its upper vein more convexly curved apically and its apical vein slightly more sinuate; head in front in profile straighter or even slightly depressed across base of face. 153
- (b) Axillary lobe entirely clear or hyaline or only slightly darkened at extreme base, the dark anterior dimidiate infuscation extending only from middle of anal cell; discoidal cell not or scarcely depressed anteriorly, less or not broadened apically, its upper vein straighter, only normally and not convexly curved apically and its apical vein usually straight; head in front in profile slightly more convexly rounded. 156
153. (a) Anterior part of frons to a variable extent and face reddish or brownish; posterior half of scutellum and in ♂♂ sides of tergites 2, 3 and 4 and sometimes sides of 2 and 3 in ♀♀ to a variable extent and basal half of venter in both sexes reddish; hairs in collar, upper part of mesopleural tuft, metapleural tuft or sometimes entire pleurae and on sides basally of tergite 1 more yellowish to orange yellowish; hairs on sides of tergites 2-4 in ♂♂ and 2-3 in ♀♀ entirely or predominantly whitish; ♂♂ with dense silvery gleaming white scales on tergites 2-4 which either cover almost entire tergites very broadly or only broadly on sides and narrowly across basal parts discally of 3 and 4, and also with silvery gleaming ones across bases of 6 and 7; ♀♀ with white scales on sides of tergite 2, a white band across more than basal half of 3 and white bands across 6 and 7; margin of dimidiate infuscation in wings straighter; discoidal cell less broadened apically, its upper vein less convexly curved apically and the middle cross vein usually before its middle; first posterior cell more narrowed apically; middle and hind legs with more numerous spines and spicules, those on outer upper aspect of hind tibiae more numerous, very much denser and also with longer scales intermixed. 154

- (b) Frons and greater part of face black; entire or greater part of scutellum and abdomen above black, only the narrowish hind margins of sternites reddish; hairs in collar and pale hairs on pleurae where present paler yellowish or straw-coloured, those on sides of abdomen from apex of tergite 2 to end entirely or mostly black; ♂♂ without dense and conspicuous silvery scaling on sides or across tergites 2-4, only with white scaling on sides or as bands across base of 2 or across 3 and also across last two tergites; margin of dimidiate infuscation with a more distinct or deeper indentation opposite base of discoidal cell; discoidal cell distinctly more broadened apically, its upper vein distinctly more convexly curved apically and middle cross vein tending to be beyond its middle; first posterior cell very broad apically; middle and hind legs with fewer spines and spicules, those on outer part of hind tibiae fewer and widely separated, without dense longish scales in between. 155
154. (a) Dense silvery scales on abdomen in ♂ present broadly on sides of tergites 2-4 and narrowly across bases of 3 and 4 medially and discally or even absent discally on 3 and 4; sides of tergites 2-4 in ♂ and 2 and 3 in ♀ less extensively reddish and only basal half of venter reddish; lower parts of pleurae in ♂ and to a certain extent in ♀ and hinder part of venter in both sexes with more black or dark hairs, the lower pleurae in some ♂♂ even entirely black-haired; hair in collar, upper part of mesopleural tuft, metapleural tuft and base of abdomen in both sexes deeper or more orange yellowish; white band across tergite 3 in ♀ a little narrower discally and without any white scales on sides of 4. ♂ ♀ *dimidiata* Macq. (p. 855)
- (b) Dense silvery scales on abdomen in ♂ present broadly across entire tergites 2-4 or only narrowly interrupted along midline, the discal part of 2 with less extensive black scaling; sides of tergites 2-4 in ♂ and 2 and 3 in ♀ more broadly reddish and entire or greater medial part of venter reddish in both sexes; lower parts of pleurae and greater part of venter in both sexes with much fewer dark hairs or almost entirely pale; hair in collar, upper parts of pleurae and base of abdomen paler yellowish; white band across tergite 3 in ♀ tending to be slightly broader discally and usually also with a small patch of white scales on sides of 4. ♂ ♀ var. of *dimidiata* (Macq.) (p. 855)
155. (a) Base of face distinctly though slightly transversely depressed, the face relatively shorter and front part of head with sparser, more brassy scaling; style of antennal joint 3 longer, very much more than half length of joint, sometimes as long as joint itself; entire or greater part of scutellum black and hind margins of sternites more narrowly reddish; hairs on pleurae, excepting yellowish upper part of mesopleural tuft and whitish or straw-coloured metapleural tuft, and those on venter mostly dark or black; hair on sides of abdomen distinctly denser; white scaling on abdomen above mostly confined to sides of tergites 2 and 3 and that across entire last two tergites gleaming more silvery white; scaling on venter dark; dimidiate infuscation in wings slightly more extensive, occupying also more than half anal cell, more of base of fourth posterior cell and extending apically in marginal cell to a point a little beyond end of false vein in costal cell, the hind margin of the infuscation with a shallower indentation at base of discoidal cell and with more of base of latter cell infuscated; submarginal cross vein relatively longer, more S-curved; second posterior cell more rhomboidal, its sides less sinuous; first posterior cell less narrowed apically. ♂ *tuckeri* Bezz. (p. 856)
- (b) Base of face not transversely depressed, the face relatively longer and head in front with denser, more greyish silvery whitish scaling; style much shorter, shorter than half length of joint; posterior part or hind border of scutellum reddish and hind margins of sternites more broadly reddish; hairs in collar and on pleurae predominantly straw-coloured yellowish and those on venter whitish; hairs on sides of abdomen distinctly less dense; white or pale scaling on abdomen above in form of a narrow complete band across base of tergite 2, a broader white band across 3 and broad whitish, not silvery, ones across 6 and 7 and slightly more yellowish scales on sides of 4 and 5; scaling on venter gleaming silvery greyish to whitish; infuscation in wings slightly less extensive, occupying only about half anal cell and only across basal cross vein of fourth posterior cell and extending obliquely into marginal cell to a point a little distance short of end of false vein, the hind margin of infuscation more distinctly

and more deeply indented step-like at base of discoidal cell, leaving distinctly much less of base of latter cell infuscated; submarginal cross vein relatively shorter, straighter; sides of second posterior cell more sinuous; first posterior cell, though very broadly open apically, more rapidly narrowed apically.

♂ *ovamboana* n. sp. (p. 857)

156. (a) Greater part of frons and entire face in ♂ with dense, brilliantly silvery, white scales and in ♀ with more silvery or silvery-gleaming scales, the frons and face relatively slightly broader; antennal joint 3 longer, its style shorter; scutellum with at least hinder half of disc reddish and with much or some dark scaling in addition to whitish ones across hind margin; hair in collar and on pleurae more white; abdomen above with apparently denser and more extensive white scaling on sides and fewer black scaling above; infuscation in wings slightly less extensive, the axillary lobe without or scarcely with any infuscation basally along anal cell and in ♂ much less than basal half of discoidal cell infuscated, and in ♀ infuscation does not extend to apex of costal cell; first posterior cell distinctly more rapidly narrowed apically.

♂ ♀ *metopargyra* n. sp. (p. 859)

- (b) Frons and face in both sexes without dense, brilliantly silvery scaling, with only sparse silvery-gleaming ones more especially on sides of face, the frons and face also relatively narrower; antennal joint 3 shorter, more conical, its style longer, at least half length of joint; only hinder part or hind margin of scutellum reddish, sometimes even entirely black and usually with denser and entirely whitish scaling; hairs in collar and on pleurae more straw-coloured; abdomen above with apparently less white scaling on sides and more dark or black ones discally; infuscation in wings slightly more extensive in both sexes, the base of axillary lobe along anal cell more infused and at least half of basal part of discoidal cell infuscated in both sexes and the infuscation extends obliquely to end of costal cell; first posterior cell slightly less rapidly narrowed apically.

♂ ♀ *masienensis* Hesse (p. 858)

157. (a) Third posterior cell much longer, very much more than two-thirds length of fourth posterior cell, the distance between its base and base of fourth posterior cell thus very much shorter; discoidal cell either distinctly more produced or subacute apically, its upper vein more convexly curved apically and its apical vein usually more sinuous, longer, more subparallel to hind margin, or discoidal cell is more roundly dilated bulb-like apically; either both sides of second posterior cell or side between it and third posterior cell distinctly more sinuous; sternopleuron rarely with a dense patch of snow-white or with very dark scaling; abdomen without any white scaling on tergite 4 or with a smaller patch on sides; pale scaling, if present on this tergite, usually mainly yellowish; tergite 3 more often with a complete band of white or pale scaling and, if with white only on sides, tergite 4 without a complete whitish band.

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- (b) Third posterior cell much shorter relative to fourth, only about or a very little more than two-thirds length of latter, the distance between its base and base of fourth posterior cell distinctly longer; discoidal cell distinctly more truncate apically and, if dilated apically, not so roundly bulb-like, more leek-shaped, its upper vein less convexly rounded apically and its apical vein straight, shorter, more subperpendicular to hind margin of wings; sides of second posterior cell straight or distinctly less sinuous, the cell more rhomboidal; sternopleuron with a dense patch of snow-white or even silvery-gleaming scales or, if not with a white patch, then with very dark ones; abdomen with more extensive white or pale scaling on tergite 4, either as a more extensive patch on sides, continued as cream-coloured ones discally or as a complete white band; pale or white scaling on 3 usually less extensive, rarely a complete band.

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158. (a) Face relatively longer, much or very much more than a third length of distance between antennae and ocellar tubercle, the face slightly more convexly curved or blunter; wings distinctly less extensively infuscated basally and anteriorly, the greater parts of or even entire second basal cell and anal cell being more extensively or entirely clearer than infuscated or more tinged anterior part, without any or with fewer or less distinct spots in hyaline parts, rarely with distinct infusions at bases of two apical cells and on apical vein of discoidal cell; latter cell more acute or more

produced apically and, if dilated sub-bulb-like apically, slightly less truncate and other characters do not differ. 159

- (b) Face relatively much shorter, only a little more than a third length of distance between antennae and ocellar tubercle, the face slightly more conically pyramidal; wings slightly more extensively infuscated in basal and anterior parts, the infuscation also faintly occupying the second basal cell and base of anal cell to a variable extent, with distinct and conspicuous spots on basal cross veins of third and fourth posterior cells and fainter infusions also along apical vein of discoidal cell and at bases of apical cells; discoidal cell dilated bulb-like apically and more distinctly truncate apically, the apical vein markedly inclined to hind margin and tending to be slightly curved inwardly. ♂ ♀ *obscurinotata* n. sp. (p. 849)

159. (a) Body predominantly reddish, the entire or greater part of head, entire scutellum, infusions on pleurae and almost entire abdomen above and below (excepting only a row of black discal spots along midline above and sometimes narrow bases of sternites) being reddish, and even legs (even if dark-scaled) mainly reddish; hairs and bristly hairs on body mainly pale yellowish or pale golden yellowish and whitish, only those on frons or basal half of frons, the prealar, postalar and scutellar bristles, sometimes a few humeral bristles, sometimes the fine hairs on thorax above, fine ones on abdomen discally above, sometimes those across last tergite and some coxal bristles being black; hairs on sides of abdomen relatively shorter or distinctly much shorter; scaling on body above and below, especially abdomen, mainly or entirely pale yellowish or cream-coloured, more uniform, not in contrasting transverse bands and without any or scarcely any black scaling; wings only distinctly infuscated at base and in costal cell, the infusion in marginal and first basal cells very faint, or wings tinged reddish throughout, with only base, costal cell and first basal cell slightly deeper yellowish reddish; veins on the whole paler reddish. 160

- (b) Body, even if with much red, not mainly reddish on all these parts, with more extensive black, the abdomen above, even if only discally, with more extensive black or even predominantly black; hairs and bristly hairs, apart from the usual black thoracic and scutellar bristles, with more black hairs, especially on abdomen and sides of tergites; hairs on sides of abdomen relatively longer and denser; scaling on body above, especially abdomen, usually with much dark or black ones as well, often with pale and dark contrasting bands and, if appearing uniformly pale, other characters do not differ; wings usually more extensively infuscated, either more broadly so in anterior part or distinctly more extensively and uniformly tinged in basal and antero-costal parts and, if mainly hyaline as in some ♂♂, other characters do not differ; veins usually darker, more reddish brown or even blackish brown. 161

160. (a) Abdomen distinctly more conical or more or less triangular, more rapidly narrowed posteriorly, more pointed apically, its last tergite longer, narrower, not broadly rounded apically, and with a dense fringe of longish black hairs; sides of head behind eyes, humeral tubercle and sides of thorax above reddish; hairs on anterior half of frons at least yellowish or pale; hairs on thorax discally, some on sides apically of tergites (or some of these), and some coxal bristles black; hairs on sides of abdomen shorter; scaling on legs dark or darker; wings more sharply pointed, more greyish hyaline, the base and costal cell darker yellowish reddish or brownish; basal vein of second apical cell without even a faint spot-like infusion and apical vein of discoidal cell also without a trace of an infusion; vein between second basal and discoidal cells markedly long; style of antennal joint 3 distinctly longer, very much more than half length of joint. ♂ ♀ *batrachoides* Bezz. (p. 798)

- (b) Abdomen, though conical, less rapidly narrowed posteriorly, less triangular, more rounded posteriorly, its last tergite broader, more normally and more broadly rounded apically, distinctly shorter, and with a fringe of shorter golden hairs; sides of head behind eyes, humeral tubercle and to a certain extent sides of thorax above black; hairs on entire frons and on antennae above dark or black; fine hairs on disc of thorax pale and all those on sides of abdomen pale reddish golden; those on sides of latter relatively longer and denser; scaling on legs mainly pale yellowish or yellowish white; wings slightly less pointed, tinged slightly more subopaquely reddish yellowish

throughout, the base and costal cell only slightly deeper yellowish; basal vein of second apical cell and to a certain extent also apical vein of discoidal cell with distinct, though faint, spot-like infusions; basal vein of discoidal cell much shorter, of normal length; style of antennal joint 3 very much shorter, only about or less than half length of joint. ♀ *stevensoni* n. sp. (p. 799)

161. (a) Style of antennal joint 3 longer, distinctly more than or much more than half length of joint; tergite 2 with a band or transverse patch of dark or black scales across its base which is either complete or present only discally, the pale or whitish scaling on this segment usually in form of a band across its middle or a transverse or basal patch on each side, the band of dark or black ones across its hind margin or hinder part thus appearing much narrower in forms with a complete pale band; abdomen above either with uniform pale or yellowish scaling and without any contrasting dark and pale bands or, if with such bands, base of tergite 2 with black scaling; spot-like infuscation at base of basal cross vein of discoidal cell more distinct or more conspicuous. 162

- (b) Style distinctly shorter or very much shorter, usually not much more than half length of antennal joint 3; tergite 2 with a distinct, transverse, contrasting band of whitish or very pale scales across base and a broad band of yellowish and black or entirely black ones across hinder half, this latter band usually broader than rest of dark or more yellowish bands; abdomen above usually with bands of black and pale scaling or with whitish and yellowish bands; spot-like infuscation at base of basal cross vein of discoidal cell more indistinct, fainter or absent. 166

162. (a) Body more *Villa*-like; antennal joint 3 short, rapidly broadened basally, bulb- or onion-shaped, subequal in length to or even slightly shorter than combined length of 1 and 2, its style at least as long as or longer than joint itself; interocular space relatively much narrower on vertex, only a little wider than ocellar tubercle in ♂ and only a little more than twice width of tubercle in ♀; individual white scales on body truncate or slightly emarginate apically; sternopleuron with a conspicuous patch of dense, snow-white scales, and with dense show-white scales also on coxae and above hind coxae; wings glassy hyaline, less extensively infuscated blackish brown in anterior part, this infuscation occupying only base, costal cell, extreme base of second basal cell, entire first basal cell, basal part or basal half of marginal cell and, in ♀, also extreme bases of enclosed submarginal and first posterior cells, without any cloudiness across base of discoidal cell; middle cross vein slightly before middle of discoidal cell; basal tooth of claws more reduced, minute. ♂ ♀ *bolbocera* n. sp. (p. 883)

- (b) Body not *Villa*-like; antennal joint 3 longer, distinctly much or very much longer than joints 1 and 2 combined, more conical, not onion-shaped; interocular space on vertex much broader in both sexes; individual pale or white scales on body more pointed apically, more spear-blade-shaped; sternopleuron without a conspicuous patch of dense snow-white scales; wings usually more greyish hyaline or even slightly tinged throughout, the anterior darker basal and costal parts or anterior infuscation more extensive, either with a faint cloud-like extension across base of discoidal cell or with the second basal cell and bases of enclosed submarginal and first posterior cells infused to a greater extent; middle cross vein usually at about or more often slightly beyond middle of discoidal cell; basal tooth of claws more developed. 163

163. (a) Transverse bands of pale scaling on abdomen above more cream-coloured or yellowish, appearing more uniform in some cases; wings usually with faint or distinct spot-like infusions on apical cross vein of discoidal cell and often also at bases of apical cells; hairs in collar above, upper part of mesopleural tuft and in metapleural tuft yellowish to deep yellowish, though less deeply orange; legs paler, more reddish; entire or greater part of or front half of frons and entire face, entire or greater part of scutellum, almost entire or greater part of abdomen or very broad sides of latter or broadish hind margins of tergites and entire or greater part of venter in both sexes reddish; abdomen more pointed apically. 164

- (b) Transverse bands or patches of pale scaling on abdomen above, where present across certain or most of the tergites, contrastingly white or snow-white; wings without an

indication of an infusion along apical vein of discoidal cell or at bases of apical cells; hairs in collar, upper part of mesopleural tuft and in metapleural tuft more orange fulvous; legs darker or black; body, especially abdomen in ♀♀, predominantly black and, even if frons and face are mainly reddish or yellowish, abdomen above and below predominantly or entirely black; abdomen tending to be more ovate, less pointed apically. 165

164. (a) Anterior infuscation in wings darker, dark reddish brown to dark brown, well defined and well marked off, extending apically in marginal cell to about or very near base of submarginal cross vein and also occupying much more than basal half of enclosed submarginal cell, with the second basal cell, though clearer than anterior part, also distinctly tinged to a variable extent; spot-like infuscations at bases of apical two cells usually present and distinct to a variable extent and infusion on apical vein of discoidal cell usually more conspicuous; discoidal cell relatively narrower, more depressed above at about level of or near middle cross vein, its apex slightly more subacute and its lower vein less curved outwards and in a more continuous curve with its apical vein; legs yellowish or reddish; abdomen mainly reddish in ♂, with a much narrower median black infuscation and in ♀ with very much broader reddish sides and basal half of frons more extensively black in both sexes; style of antennal joint 3 shorter, stouter, usually less or much less than two-thirds length of joint; transverse bands of pale scaling on abdomen more yellowish, only paler on sides, and bands of black ones relatively narrower, more developed medially and discally. ♂ ♀ *stannusi* Bezz. (p. 797)
- (b) Anterior infuscation usually less intense or paler, more yellowish brownish, appearing more diffuse or fainter, less well marked off, ceasing apically in marginal cell some distance away from base of submarginal cross vein and occupying only about basal half of enclosed submarginal cell, with the second basal cell much clearer or even hyaline; spot-like infuscations in apical part sometimes wanting; discoidal cell relatively broader, slightly less depressed above, its apex slightly blunter and its lower vein tending to be more curved outwards and sometimes to be more sharply bent to the apical vein; legs black; abdomen in ♂ with a broader median black infuscation and reddish on sides in ♀ narrower, sometimes only broadish on sides of tergites 2 and 3, and red of frons extending right up to vertex to a variable extent; style more slender, longer, at least two-thirds length of joint; transverse bands of pale scaling on abdomen paler, more cream-coloured and bands of black scales separating them relatively broader and more complete across tergites. ♂ ♀ *major* Ric. (p. 794)
165. (a) Anterior part of frons to a variable extent and entire face yellowish; hairs on entire sides of face pale, those in collar, upper part of mesopleural tuft and metapleural tuft fulvous yellowish, those on sides of abdomen shorter, with those on sides of tergite 1, greater part of 2 and intermixed among black ones on rest of sides white; scaling on thorax above in ♀ at least mostly yellowish or golden, that on abdomen above in form of broad bands of conspicuous white ones across all the tergites, separated by bands of black ones, and that on venter entirely white; wings with the base, costal cell, more than basal half of marginal cell, basal half of enclosed submarginal cell, base of first posterior cell, first basal cell and band-like to a lesser and fainter extent in basal half of discoidal cell and apical part of second basal cell brownish to pale yellowish brown; spots on middle cross vein and at bases of third and fourth posterior cells more distinct; discoidal cell broader, more broadened apically and its lower vein more curved outwards apically. ♂ ♀ *albata* Bezz. (p. 796)
- (b) Entire frons and greater part of face black; hairs only on extreme sides of face pale, those in collar and upper parts of pleurae deep orange fulvous, those on sides of abdomen longer, denser, entirely black beyond tergite 3 and even on extreme sides of 3; scaling on thorax above mainly black, that on abdomen also mainly black, white ones in bands being only present across tergites 3 and 7 and broadly on sides of 2, narrowly or sparingly discally on 2 and sparsely on sides of 6, and that on venter snow-white and conspicuous on sternites 2 and 3, darker or sparser on 4 and 5 and less intensely white posteriorly; wings more greyish hyaline, the base, costal cell, more than basal half of marginal cell, bases of enclosed submarginal and first posterior cells, and first basal cell darker, more blackish brown, without a faint band-like

extension across base of discoidal cell; the three spots on cross veins very much fainter, and the veins also darker; discoidal cell narrower, more subacute apically, its lower vein only feebly curved outwards, more or less in a continuous curve with apical vein. . . . ♀ *thoracica* Bezz. (p. 801)

166. (a) Abdomen above usually with the scaling arranged in more or less regular transverse bands of yellowish to pale yellowish ones separated by bands of jet-black, shining ones, or abdomen uniformly yellow-scaled above, with the band across base of tergite 2 yellowish, not white, and with white scaling, if present, only on extreme sides of tergites 2, 3 and 4 and across last or last two tergites; humeral tubercle and sides of thorax in front of black prealar bristles without any black bristly hairs and without any or with fewer, or a smaller patch of, black hairs on sides of tergite 2 apically; discoidal cell narrower, distinctly more acute or subacute apically, its apical vein less oblique, tending to be more subparallel to hind margin of wing; scutellum tending to be more subtriangular, slightly more pointed apically. . . . 167
- (b) Abdomen above with the white and black or white and yellowish scaling not arranged in such regular transverse bands and also not so uniformly yellow-scaled, either with a conspicuous white band across base of tergite 2, then a very broad band of dark or black scales separating it from white band across 3, followed by bands of white or yellowish and white ones separated by narrower black bands, the last two tergites however entirely white-scaled, or the basal band of 2 is white, the scales on sides of 3 and those on last two tergites white and the other tergites or middle parts of tergites with yellowish scaling, not separated by distinct bands of black ones; humeral tubercle and sides of thorax anteriorly with numerous black bristly hairs and with a larger patch or even dense black hairs on sides of tergite 2 apically; discoidal cell relatively broader, more broadened apically, either bulb-like and truncate apically or apex is more obtusangular or subrectangular, its apical vein more oblique to hind margin; scutellum more broadly rounded apically. . . . 169
167. (a) Extreme front part of frons and entire sides of face or even greater part of face, excepting only a black streak or discal infuscation of variable extent, yellowish red; sides of tergites 2 and 3, especially in ♂, to a variable extent and sometimes broadly and either entire venter or broad hind margins of latter yellowish red; legs yellowish, the outer apical parts of femora dark-scaled or not; abdomen above sometimes with the bands of dark scaling very narrow or wanting; tergites 2-4 or 5 on sides with more whitish or distinct white scales and last two tergites entirely or mainly white-scaled and 2 usually with both a narrow basal band and a narrow one across its middle of yellowish scales, separated by black ones and if not at least some darkish scales across its middle; sides of tergites 2 and 3 apically usually with some or a few black hairs; wings with the brownish anterior infuscation more intensive and distinct, the second basal cell even in ♂ tending to be more distinctly or even darkly tinged to a variable extent; upper vein of discoidal cell tending to be more convexly curved apically and the cell more depressed at level of middle cross vein. . . . ♂ ♀ *parvula* Bezz. (p. 860)
- (b) Entire frons and greater part or discal part of face, excepting only the extreme sides below and buccal margin, black, the black on face saddle-shaped; abdomen above entirely black or in some ♂♂ less extensively reddish on sides of tergites 2-3 (or 4) and the venter entirely black or with narrower reddish hind margins, the scutellum too sometimes entirely black or reddish only posteriorly; legs black or dark even if dark-scaled; abdomen with the black and yellowish bands more constant, without any or with less distinct white scaling on sides of tergites, and with only the last one or last two distinctly white-scaled, and 2 with only a broadish basal band (very broad in ♀♀) of yellowish scales, the hinder half or hind part black-scaled; sides of tergites 1-3 usually entirely pale-haired or, if with a few dark hairs, face and legs are dark; wings with the anterior infuscation usually fainter, more diffuse, or even less extensive, being more reduced in ♂♂ where it may even be confined to extreme costal part, the second basal cell being clearer even in ♀♀; upper vein of discoidal cell tending to be straighter or straight and less convexly curved apically. . . . 168
168. (a) Wings with the anterior infuscation in ♀ more distinct, more well marked off and also slightly more extensive, the second basal cell, base of discoidal cell and extreme base

of first posterior cell being distinctly even if only slightly more tinged, with the spot-like infuscations on middle cross vein and bases of third and fourth posterior cells darker, larger, more conspicuous; infuscation in ♂ more reduced than in ♀, the greater part of marginal cell, entire enclosed submarginal cell, bases of first posterior and discoidal cells and even entire second basal cell hyaline; scutellum reddish only posteriorly or even entirely dark; face and head in front in profile straighter, the face more pointed; middle and hind femora with more spines; last tergite with paler, whitish or yellowish scales across hind margin; hairs on upper parts of pleurae more straw-coloured yellowish to pale yellowish. . . . ♂ ♀ *apiformis* n. sp. (p. 862)

- (b) Wings slightly more greyish hyaline, the anterior infuscation distinctly fainter, slightly more yellowish, less delimited, imperceptibly grading into more hyaline parts, the second basal and discoidal cells clearer, with the spot-like infuscations on these three cross veins very faint or almost imperceptible; scutellum more extensively reddish or at least red in hinder half; face and forehead in profile slightly more convexly rounded and face blunter apically; middle and hind femora with fewer spines and hind ones with only a few long spines near apex; last tergite with black scales across hind margin; hairs along upper parts of pleurae more whitish.

. . . . ♀ *paucispina* n. sp. (p. 863)

169. (a) Anterior infuscation in wings paler, yellowish or pale yellowish brownish, the veins more yellowish or reddish brown; the infuscation in ♂♂ much reduced, leaving greater part of marginal cell and entire second basal cell hyaline; halteres paler, more yellowish brown, their knobs pale yellowish; antennal joint 3 more rod-like, its style very short or even vestigial, not longer than antennal joint 2; hind margins of tergites reddish and those of sternites distinctly more broadly so; tibiae paler, more yellowish or yellowish brown; hairs on sides of abdomen less dense, with numerous pale golden or reddish golden ones among the black ones beyond whitish ones on sides of tergites 1 and 2; hairs on pleurae and venter entirely pale; scaling on abdomen above either entirely or predominantly pale, the black ones being much reduced or fewer, or with white scaling absent on tergites 4 and 5; scaling on thorax above mostly yellowish and that on venter entirely white or whitish. . . . 170

- (b) Infuscation in wings dark smoky brownish or dark blackish brown; infuscation in ♂♂ slightly less reduced, being still present to a variable extent in basal half of marginal cell and base of second basal cell; halteres dark blackish brown, their knobs very dark; antennal joint 3 more elongate-conical, its style distinctly or very much longer than antennal joint 2; tergites and sternites entirely black or with the hind margins of latter more narrowly yellowish; legs and even tibiae much darker or black; hairs on sides of abdomen distinctly denser, longer, entirely black from apical half of tergite 2; hairs on pleurae entirely black or mesopleuron with numerous intermixed black hairs and those on hind half of venter dark; abdomen above with much black scaling as bands separating white ones, with much fewer yellowish scaling, the white ones either in complete bands across base of tergite 2 and across 3, 5, 6 and 7 and on sides of 4, or the white ones are present on sides of 2, across 3, 6 and 7 and on sides of 4 and 5; scaling on thorax mostly black and that on venter snow-white only basally on sternites 2 and 3. . . . 171

170. (a) Scaling on abdomen above mainly yellowish like that on head and thorax, without any or with only very narrow bands of black ones across hind margin of tergite 2 and bases of 3-5 to a variable extent, with the whitish ones as a conspicuous band across base of 2, sides of 3 and across 6 and 7; hairs on sides of abdomen and across last tergite with numerous or with almost entirely yellowish or reddish golden ones and also with more yellowish hairs on sides of face; style of antennal joint 3 about as long as joint 2; face with more yellowish along buccal part and sides below; tibiae on the whole paler. . . . ♂ ♀ *cervina* Bez. (p. 863)

- (b) Scaling on abdomen above composed of white, yellowish and black ones, the white ones in transverse bands across base of tergite 2 and across 3, 6 and 7, ochreous yellowish ones across hinder half of 2, partly across base of 3 and across hind margins of 4 and 5, and the black ones across middle part of 2, hind margin of 2, to a certain extent also across base of 3 and across bases of 4 and 5; hairs on sides of abdomen from

apical half of tergite 2 to hind margin of 7 mainly black or at least with fewer pale ones intermixed and hairs on sides of face mainly black or with more black ones; style very short, scarcely separately discernible, shorter than antennal joint 2; face with the yellowish less extensive; tibiae darker, more brownish.

♂ ♀ *griqua* n. sp. (p. 865)

171. (a) Hairs on pleurae, excepting yellowish ones in upper part of mesopleural tuft and in propleural tuft and upper or hinder part of the metapleural tuft, entirely black, and those on sides of abdomen, especially on sides of tergite 2, denser and longer; white or whitish scaling present as complete bands across base of tergite 2 and hinder parts of 3-7, those discally on 4 and 5 slightly more yellowish; greater part of scutellum reddish; face relatively shorter; middle and hind legs with more spines and spicules, the spicules on outer aspect of hind tibiae distinctly more numerous, denser and with longer scales intermixed; discoidal cell slightly more acute apically and anterior infuscation in wings more blackish brown; slightly larger species, about 12-13 mm. long, with wings 12-13 mm. long. ♂ ♀ *ogilviei* n. sp. (p. 865)
- (b) Most of the hairs on pleurae, prosternal part and metapleural tuft straw-coloured or whitish and with only some dark ones intermixed among pale ones on middle parts and those on sides of abdomen relatively less dense, shorter; white scaling on abdomen present as a patch only on each side of tergite 2 apically (those across base discally yellowish, not white), across hinder half of 3, across 6 and 7 and on sides of 4 and 5; scutellum entirely black or only obscurely reddish apically on disc; middle and hind legs with distinctly fewer spines and spicules, those on hind tibiae distinctly fewer, less dense; discoidal cell more truncate or bulb-like truncate apically and infuscation in wings more smoky brownish; slightly smaller form, about 9-9½ mm. long and the wings 9-9½ mm. long. ♀ *porricella* n. sp. (p. 867)
172. (a) Wings with more distinct spot-like infuscations or infusions on all or some of the cross veins and bifurcations and sometimes also with distinct or faint, narrowish, fuscous borders along veins, with the anterior infuscation usually more intense and well marked off; discoidal cell on the whole broader, usually more broadened or dilated leek-like apically; abdomen with the transverse bands of pale scaling distinctly more whitish or white or with more white ones, the one across base of tergite 2 white even if those across 3, 4, and 5 are creamy yellowish or pale yellowish, and if these latter bands are yellowish discally, hair on pleurae not entirely contrastingly snow-white and scales on sides of face less brilliantly silvery white; slightly larger forms. 173
- (b) Wings without any spot-like infuscations on cross veins and bifurcations in uninfuscated parts or with much fainter and indistinct ones at bases of third and fourth posterior cells, without any trace of fuscous borders along veins, with the anterior infuscation less intense and less well marked off; discoidal cell usually narrower, not broadened apically and, if very slightly broadened, its apex is slightly more acute; abdomen either with the broadish transverse bands of pale scaling predominantly yellow or ochreous yellowish, those across base of tergite 2 and across 6 and 7 being scarcely more whitish, or the abdomen with most of the bands creamy yellowish or greyish yellow and body below with very conspicuous and contrasting snow-white hairs and very brilliantly silvery scales on sides of face; slightly smaller forms. 186
173. (a) Infuscation in anterior costal part of wings relatively less extensive and narrower, leaving entire or by far the greater part of second basal cell clear or hyaline and apically falling far short of base of submarginal cross vein, occupying less of apical part of marginal cell and usually less or not more than basal half of enclosed submarginal cell and less of base of first posterior cell, with the spot-like infuscations on cross veins usually less developed, those at bases of apical two cells and on apical cross vein of discoidal cell even less distinct, much fainter and sometimes scarcely indicated, and without fuscous borders to veins; transverse band of pale or whitish scaling across tergite 4 broader, occupying at least basal half of tergite and the pale band across 5 if present also relatively broader or more distinct or the pale scaling more broadly dispersed across at least its basal half. 174
- (b) Infuscation in wings relatively broader, more extensive (sometimes entire wings infuscated), the basal and anterior part or sometimes even greater part of second basal

cell to a variable extent and a streak along upper vein of discoidal cell or even its base infused or tinged to a variable extent and extending apically in marginal cell to very near or about base of submarginal cross vein, at the same time occupying usually more than or at least basal half of enclosed submarginal cell and nearly basal half or more of the base of first posterior cell, with the spot-like infusions on cross veins and bifurcations usually more conspicuous and usually with those at bases of apical two cells and at apex of discoidal cell more conspicuous and, if not, infuscation is extensive, and sometimes also with distinct narrow fuscous borders to most of the veins; transverse band of pale or whitish scaling across tergite 4 distinctly narrower across discal part of the segment where it occupies usually less than basal half and with the pale ones across 5 equally narrow or sometimes wanting. 177

174. (a) Infuscation in wings extending apically from a little beyond middle cross vein very obliquely across basal part or basal half of enclosed submarginal cell towards level of end of false vein or end of costal cell in marginal cell, the apical margin of infuscation indistinct, faint, less subtruncate and with the infuscation not extending slightly across fourth vein into discoidal cell; abdomen above with more or less broadish transverse bands of pale scaling on all the tergites, and if not very dense at least sparsely pale-scaled or pale yellowish-scaled to a variable extent; mesopleuron broadly boss-like, much larger, subequal in length to pteropleuron. 175
- (b) Anterior infuscation in wings more clearly defined or well marked off, its apical margin clearly delimited, extending subtruncate from nearly basal half of first posterior cell across at least basal half of enclosed submarginal cell and subtruncate across marginal cell to opposite end of false vein in costal cell, and basally it extends in front of middle cross vein slightly over fourth vein into discoidal cell; abdomen with broad transverse bands of whitish scaling across base of tergite 2, 3 and 6 and 7, tergite 5 being entirely dark-scaled; knob-like, convex mesopleuron distinctly very much smaller and very much shorter than pteropleuron. ♂ *brachipleuralis* n. sp. (p. 873)
175. (a) Legs very dark or black, the spines and spicules on middle and hind ones distinctly very much longer, the long ones at least as long as the femora or tibiae are thick; sides of tergites 2 and 3 not or only very obscurely reddish even in ♂♂ and hind margins of tergites not reddish; hairs on sides of abdomen distinctly denser and longer; band of pale scaling across base of tergite 3 either very narrow or at least narrower discally than basal half of segment, its scales usually more yellowish or creamy yellowish like those across tergite 5 or in some ♂♂ even dark; wings usually longer than body; discoidal cell distinctly more bluntly truncate apically, its apical vein more oblique to hind margin; face without a band of denser and paler scaling arcuately across its base; slightly smaller form, about $9\frac{1}{2}$ – $15\frac{1}{2}$ mm. long, with wings about $10\frac{1}{2}$ – $17\frac{1}{2}$ mm. long. 176
- (b) Legs more reddish brown, rather stoutish, the spines and spicules on middle and hind ones distinctly very much or markedly shorter, the longest ones very much shorter than thickness of femora or tibiae; sides of tergites 2 and 3 and in ♂ also broadish hind margins of tergites ferruginous; hairs on sides of abdomen distinctly shorter and sparser; bands of whitish or white scaling across all tergites broad, that across 3 at least half length of segment and scarcely less white than rest of bands; wings as long as body, infuscated darker; discoidal cell slightly, but distinctly more subacute apically, its apical vein less oblique to hind margin; face with a band of slightly denser and whiter scaling arcuately across its base; slightly larger form, about $18\frac{1}{2}$ – 19 mm. long, with wings about $18\frac{1}{2}$ – 19 mm. long. ♂ ♀ *majuscula* n. sp. (p. 871)
176. (a) Anterior part or half or even more than half of frons, base and genal part of face reddish to a variable extent and even entire face sometimes reddish; sides of tergites 2 and 3 in ♂ sometimes reddish or obscure reddish to a variable extent; pteropleuron usually with some or a few reddish bristles intermixed and mesopleuron usually without fine, intermixed, dark hairs. ♂ ♀ form of *luteicosta* Bezz. (p. 869)
- (b) Entire head in front, including entire or greater part of face, or excepting only genal part to a variable extent, black; abdomen in both sexes usually entirely black above; pteropleuron often with two or more dark or blackish bristles in addition to reddish

or pale ones and mesopleuron, often with some fine, intermixed, black hairs, especially in some ♂♂. ♂ ♀ *luteicosta* Bezz. (p. 868)

177. (a) Scales on head in front pale, gleaming brassy, bronzy yellowish or greyish silvery, those on sides of face even more silvery and those on thorax above with much pale or yellowish scales in addition to dark ones; sternopleuron with a patch of dense, snow-white, or even silvery white, scales and coxae also with dense white scaling; last two or three sternites usually entirely pale-scaled or with some greyish white or whitish scales; hairs on sides of face entirely yellowish or with numerous pale or yellowish ones; wings slightly less tinged greyish and with conspicuous or distinct spots or spot-like infuscations on all or at least some of the cross veins and bifurcations; style of antennal joint 3 terminal. 178
- (b) Scales on head in front and face dark or black, shining with a graphite-like lustre and those on thorax above also predominantly black and shining; sternopleuron and coxae with very dark, brownish or black, gleaming scales; last three sternites dark-scaled; hairs on sides of face entirely black like those on rest of head; wings tinged slightly more greyish, the infuscated part darker, with very narrow and obscure fuscous borders to veins in more hyaline parts and with all the spot-like infuscations on cross veins very faint, scarcely indicated; style distinctly more subterminal. ♂ ♀ *atrisquama* n. sp. (p. 873)
178. (a) Mesopleuron distinctly larger, subequal in length to pteropleuron; wings with distinct and sometimes conspicuous spot-like infuscations on all cross veins and bifurcations and usually also to a variable extent with narrow fuscous borders to veins; pale or whitish band across base of tergite 4 relatively narrower, sometimes only narrowly across base of segment. 179
- (b) Mesopleuron distinctly very much smaller and shorter than pteropleuron; wings without any distinct spots at bases of apical two cells and on apical vein of discoidal cell and without even faint fuscous borders along veins in hyaline parts; whitish band across tergite 4 relatively broader, even discally occupying at least basal half of segment. ♂ *brachipleuralis* n. sp. (p. 873)
179. (a) Metapleural tuft entirely yellowish or whitish and anterior upper part of mesopleural tuft entirely pale or yellowish like rest of upper part of tuft; hairs in hinder part of collar yellowish like front part of collar; abdomen usually with some pale or slightly yellowish scaling across base of tergite 3, especially in ♀♀, either as a narrow basal band or as scattered ones and with the band across tergite 4 relatively broader and usually slightly more yellowish; wings slightly more tinged greyish or even dark and with conspicuous or slightly more evident fuscous borders to veins and also more conspicuous spot-like infuscations on cross veins. 180
- (b) Metapleural tuft entirely black and anterior upper part of whitish mesopleural tuft with black bristly hairs; hairs across hinder part of collar above and on humeral tubercle black; abdomen without any pale scales across base of tergite 3, only a patch of white ones on sides and with the white band across base of 4 very narrow across discal part; wings slightly less greyish and without any or with very faint and scarcely perceptible fuscous borders to veins and usually with less conspicuous spot-like infuscations on cross veins. ♂ ♀ var. *metapleuralis* n. of *luteicosta* Bezz. (p. 871)
180. (a) Wings relatively broader, less elongate, with the third posterior cell relatively longer; head in front relatively narrower, considerably less broad across level of antennae than long from same level to front ocellus; style of antennal joint 3 shorter, usually not longer than antennal joint 2; pale band across tergite 3 across its base and usually narrower than band across 4 and pale band across 5, if present, also across its base and narrower than 4; legs mainly dark-scaled and with the spicules on outer aspect of hind tibiae relatively denser. 181
- (b) Wings markedly elongate, narrowish, with the third posterior cell relatively shorter; head in front at level of antennae broader, only a little narrower than length between same level and front ocellus; style longer, longer than antennal joint 2, about a third length of joint 3; pale bands across tergites 3 and 5 about as broad as that across 4 and present across middle and not bases of these segments; legs, especially femora,

with much yellowish scaling, with the spicules on outer aspect of hind tibiae relatively sparser. ♀ *engyoptera* n. sp. (p. 874)

181. (a) Front tarsi relatively thicker, with less dense and usually finer hairs, shorter, more than a third of its length shorter than front tibiae; fuscous borders along veins in wings fainter, more indistinct, the infuscation itself darker, more brownish; discoidal cell more dilated leek-like apically; pale band across base of tergite 4 broader, at least half length of segment on disc. 182

- (b) Front tarsi markedly long and slender, only about a third its length shorter than front tibiae, distinctly more densely covered with stouter hairs; fuscous borders along veins in wings more conspicuous and relatively broader, the infuscation more yellowish brownish; discoidal cell not dilated leek-like apically; pale band across base of tergite 4 narrower discally, less than half length of segment. ♀ *atrinasis* Speis. (p. 872)

182. (a) Wings distinctly broader, with broader axillary lobe, mainly hyaline, only the costal and narrow anterior part brownish or reddish brown; second posterior cell distinctly shorter and broader; middle cross vein distinctly much before middle of discoidal cell; the latter broader, broader and more leek-shaped apically; last three sternites with paler or even entirely white scaling like rest of venter; frons and face sometimes with much yellow. 183

- (b) Wings distinctly much narrower, with relatively narrower axillary lobe, distinctly more infuscated, more uniformly tinged brownish or smoky brownish throughout, the darker anterior blackish brown or brownish costal part not appearing so well delimited; second posterior cell distinctly longer, narrower, more parallel-sided; middle cross vein nearer or at about middle of discoidal cell; the latter also distinctly narrower; last three sternites with darker gleaming or even entirely dark scaling, contrasting with white scaling on rest of venter; frons and face, excepting buccal rims, entirely black. 185

183. (a) Front part or half of frons and base of face, extreme sides of tergites 2 and 3 and base of venter reddish to a variable extent; face with more yellowish hairs discally intermixed with dark ones; bristles on sides of thorax in front of wings entirely pale or with fewer dark ones; coxae with entirely golden or reddish yellowish hairs. 184

- (b) Head in front, excepting only yellowish genal parts, sides of abdomen and entire venter entirely black; face with predominantly black hairs on disc and for some way down sides; bristles or bristly hairs on sides of thorax with more numerous black ones; coxae with some or a good few black hairs. ♀ form of *luteicosta* Bezz. (p. 869)

184. (a) Antennae mostly black, the style of joint 3 very short and stoutish, much shorter than antennal joint 2; abdomen with dark scaling across hind margin of tergite 1, with a very broad white band across base of 2 and without any distinct whitish or pale scaling across 5; humeral tubercle and sides of thorax with dark bristly hairs; sternite 5 entirely dark-scaled; spot-like infuscations on cross veins in wings smaller; first posterior cell more narrowed apically and third posterior cell relatively longer. ♂ ♀ form of *luteicosta* Bezz. (p. 869)

- (b) Antennae or at least two basal joints mostly yellowish, the style pale, slender, quite as long as or even a little longer than antennal joint 2; abdomen with mostly pale scaling across hind margin of tergite 1, with a very much narrower pale band across base of 2 and with some whitish ones on sides of 5; only two or three prealar bristles black; sternite 5 also with pale or more whitish scaling; spot-like infuscations on cross veins larger, more conspicuous; first posterior cell less narrowed apically and third posterior cell relatively shorter. ♂ *barnardi* n. sp. (p. 872)

185. (a) Wings rather narrower, slightly less uniformly tinged, the darker anterior blackish brown part more contrasting with the clearer, less-tinged, hinder part, the dark spots in clearer part more evident and conspicuous; discoidal cell tending to be less straightly truncate apically, more subacute, its apical cross vein more oblique to hind border; face relatively shorter, less conically prominent; scaling on last three sternites appearing more greyish whitish in certain lights; transverse bands of pale scaling across bases of tergites 2-4 slightly narrower discally; scutellum more broadly dark across base. ♂ ♀ *ferreirae* Hesse (p. 876)

- (b) Wings distinctly more uniformly and more darkly infuscated throughout, the darker anterior and costal part even less contrasting and infusions on cross veins less conspicuous against darker background; discoidal cell more truncate apically; face relatively longer, more conically prominent; scaling on last three sternites darker, more black; pale bands across tergites 2-4 broader discally; scutellum more narrowly dark across base. ♀ *de Castroi* Hesse (p. 874)
186. (a) Bands of pale scaling across greater discal part of bases of tergites 2-4 and 6 greyish yellowish to creamy yellowish, those across 3, 4 and 6 narrow; antennae entirely dark or black; face more conical, less convex or subtumid; discoidal cell more truncate apically, its apical vein less oblique to hind margin of wings; faint spot-like infuscations at bases of third and fourth posterior cells and on middle cross vein slightly more evident; snow-white hairs on pleurae with more fine dark ones intermixed on mesopleuron and with a dark bristle on pteropleuron; legs entirely black-scaled; front and middle femora with denser and longer fine hairs on outer surfaces. ♀ *zambesiana* n. sp. (p. 880)
- (b) Bands of pale scaling across greater discal part of base of tergite 1 and across at least basal halves of 3, 4 and 6 or 3, 4, 6 and 7 and sides of 5 distinctly more yellowish to ochreous or golden yellowish and very broad; antennal joint 3 and style orange yellowish, becoming darker apically; face slightly more subtumid or convex on sides; discoidal cell slightly more subacute apically, its apical vein more oblique to hind margin of wings; spot-like infuscations on these cross veins more indistinct or scarcely perceptible; yellowish or snow-white hairs on pleurae either without fine dark hairs intermixed on mesopleuron or with fewer; legs with some pale, whitish or yellowish scales on femora at least; femora without any or with much shorter and sparser, fine hairs. 187
187. (a) Greater part of face, excepting dark discal part, basal part or half of venter and legs yellowish; hairs in collar, on humeral tubercle, on pleurae and even sides at base of abdomen yellowish, without any black bristly ones on notopleural and humeral parts excepting only black prealar bristles; scales on sides of face slightly less brilliantly silvery and those on tergite 5 entirely dark or with much fewer yellowish ones laterally; wings distinctly tinged more smoky greyish, with the infuscation in anterior costal part more intense, darker, brownish and much more extensive, occupying most of anterior part in front of fourth vein, but imperceptibly grading into clearer part; axillary lobe much narrower, the wings thus appearing more stalked; middle cross vein slightly beyond middle of discoidal cell; first posterior cell broadly open apically. ♂ *luteicincta* n. sp. (p. 878)
- (b) Greater part of face, venter and legs black; hairs in collar straw-coloured, but those on entire pleurae, sides of abdomen basally and venter very conspicuously snow-white, but with blackish bristly hairs on humeral tubercle and notopleural part in addition to black prealar bristles; scales on sides of face shining very brilliantly silvery and those on tergite 5 with much yellowish scaling on extreme sides; wings clearer, more greyish hyaline, without any extensive infuscation in anterior part, only the base, costal cell, first basal cell and part of marginal cell being yellowish and with the usual spot-like infuscations scarcely or not perceptible; axillary lobe relatively broader, the wings appearing less stalked; middle cross vein distinctly before middle of discoidal cell; first posterior cell very much narrowed or acute apically. ♀ *luteocera* n. sp. (p. 879)
188. (a) Antennal joint 3 shortly conical, bulb- or onion-shaped, its base broadly dilated bulb-like and its style very long and slender, at least as long as or longer than joint itself; interocular space on vertex narrower, in known ♂♂ scarcely or only a little wider than ocellar tubercle, in ♀♀ usually less than three times width of ocellar tubercle; sternopleuron and lower part of mesopleuron with a patch of dense, conspicuous, white scales. 189
- (b) Antennal joint 3 longer, more elongate-conical and even if broadened basally not bulb- or onion-shaped, its style much shorter, much shorter than joint itself; interocular space on vertex relatively broader, in known ♂♂ much wider than ocellar tubercle and in known ♀♀ usually not much less than three times width of ocellar

tubercle; sternopleuron usually without a patch of dense white scaling and, if with such a patch, third antennal joint elongate. 192

189. (a) Wings broader, the axillary lobe broader, much broader than anal cell, the wings not appearing as if stalked; second posterior cell much narrower than third along hind margin; greater part or entire scutellum reddish; sides of tergites 2 and 3 and entire or greater part of venter yellowish reddish; greater part of legs or inner and lower surfaces of the middle and hind femora extensively yellowish; front tarsi with the first joint less thickened and not covered with longish bristly hairs and their claws much reduced; front tibiae non-spiculate; integument of head in front not shining and face at least entirely yellowish or with more yellowish, not distinctly impressed in middle anteriorly; dark or black scaling on abdomen above less extensive, that on venter mainly pale or white; style of antennal joint 3 more slender, not or only feebly broadened apically. 190

- (b) Wings narrower, the axillary lobe distinctly narrower, only about as broad as anal cell, giving the wings a more stalked appearance; second posterior cell as broad as or broader on hind margin than third; greater part or entire scutellum black; abdomen entirely black on sides in ♀ at least and venter also mainly dark; legs darker or entirely black; front tarsi shorter, the first joint relatively shorter, thicker, covered with longish, bristly hairs and their claws distinctly less reduced; front tibiae with minute spicules; integument of head in front shining and face entirely dark or with less yellowish on sides, slightly foveately depressed above anteriorly; dark or black scaling on abdomen above more extensive (the pale scaling confined as a transverse band across base of tergite 2 and to a lesser extent across sides of 3, 4, 6 and 7) and that on venter mostly dark or black; style relatively stouter, more distinctly broadened apically. ♀ *claripennis* n. sp. (p. 887)

190. (a) Entire face and sometimes frons, the head below more extensively and behind eyes to a variable extent, the sides of tergites 2 and 3 more broadly or entirely, the broader hind margins of tergites and the greater part of legs more extensively pallid or yellowish; anterior costal part of wings distinctly paler, less extensively infuscated, more yellowish, the basal comb more pale-scaled and spots on middle cross vein, base of discoidal cell and base of fourth posterior cell less distinct; basal tooth of claws more strongly developed; scaling behind eyes entirely white or with fewer dark scales. 191

- (b) Not all these parts yellowish, entire frons and greater discal part of face black, only sides of face orange yellowish, entirely black behind eyes, tergites 2 and 3 with a smaller reddish spot, hind margins of tergites black and the legs on the whole more extensively dark or dark-scaled, only the inner and lower surfaces of femora yellowish; anterior costal part of wings distinctly darker and more extensively infuscated blackish brown or black, the infusion occupying also extreme base of second basal cell, entire first basal cell, the basal half or part of marginal cell and in ♀ even extreme bases of enclosed submarginal and first posterior cells, with the spots on middle cross vein, base of discoidal cell and base of fourth posterior cell more conspicuous; basal comb mainly dark-scaled; basal tooth of claws minute; scaling behind eyes with much black or dark ones and finer white ones. ♂ ♀ *bolhocera* n. sp. (p. 883)

191. (a) Anterior part or half or entire frons yellowish and lower half of head behind eyes extensively salmon pinkish or reddish; entire scutellum, very broad sides of at least tergites 2-4 and broader hind margins of tergites reddish; entire mesopleural tuft snow-white like rest of hair on body below and hairs on extreme sides apically of tergites 2-4 black; tergite 2 basally without or with much fewer pale scales; bands of pale scaling across tergites 3, 4, 6 and 7 more white even discally and that across hind part of scutellum glittering silvery white; dense scaling on sternopleuron duller, more cretaceous white; sternite 5 with more extensive black scaling, especially in the middle, and sometimes also with dark scaling on 6 and 7 especially in ♀; base and costal cell in wings darker, more brownish; middle and hind legs with more spines and spicules, those on outer side of hind tibiae denser, more numerous; larger species, about 13-16 mm. long, with wings about 13-16 mm. long.

♂ ♀ *villaeformis* Bezz. (p. 881)

- (b) Entire frons and even base of face medially black and lower part of head behind eyes entirely black or with only a narrow reddish line along hind margin of eyes; only hinder half of scutellum, relatively narrower sides of tergites 2 and 3 or 4 and much narrower hind margins of tergites reddish; upper part of mesopleural tuft and sometimes even propleural tuft more yellowish like collar and hairs on sides of tergites 1-4 entirely pale or with fewer dark ones; tergite 2 basally with a broadish band of pale scaling; bands of pale scaling across 2, 3, 4, 6 and 7 more yellowish, at least discally, and that across scutellum also more yellowish; dense scaling on sternopleuron denser, slightly broader, more gleaming snow-white; venter entirely white-scaled or with fewer dark ones posteriorly; base and costal cell more yellowish; middle and hind legs with distinctly fewer spines and spicules, those on outer side of hind ones sparser, much fewer; smaller form, about 8 mm. long, with a wing-length of about 8 mm.
 ♀ *pallidifacies* n. sp. (p. 886)
192. (a) Antennal joint 3 more elongate, stouter, more rod-like, in greater part characteristically orange yellowish, its style very short, stout, not longer than antennal joint 2; sternopleuron with a patch of dense snow-white scales and dense white scaling also on coxae; scaling on head in front brilliantly gleaming or shining silvery or brassy, that on sides of face very brilliantly silvery; bands of pale scaling across tergites 2-7 more uniformly yellowish on greater part of disc; hair on pleurae more snow-white; legs darker or entirely black; basal tooth of claws minute; anterior yellowish infuscation in wings slightly more extensive, occupying also first basal cell and greater part of marginal cell, in ♀ at least; first posterior cell more acute apically; halteres with brownish knobs.
 ♀ *luteocera* n. sp. (p. 879)
- (b) Antennal joint 3 distinctly less elongate and, if stoutish, distinctly shorter, brownish or black, not orange, its style more slender, longer, longer or much longer than joint 2; sternopleuron without a conspicuous patch of dense, snow-white scales; scaling on head in front duller yellowish or yellowish whitish, that on sides of face less brilliantly silvery; bands of pale scaling across tergites 2-7 more whitish or more straw-coloured; hair on pleurae more yellowish or at least more straw-coloured; legs paler or more yellowish; basal tooth of claws larger; anterior costal part in wings either not tinged at all or with a paler subopaquely yellowish tinge which is less extensive; first posterior cell less acute, more broadly open apically; knobs of halteres whitish.
 193
193. (a) Antennal joint 3 elongate-conical, more than $1\frac{1}{2}$ times as long as 1 and 2 combined, its style relative to joint very much shorter, very much shorter than half length of joint; sides of face, greater part of scutellum, sides of tergites 2-4 broadly and entire venter or broader hind margins of sternites yellowish or reddish; hairs in propleural tuft and on prosternal part entirely pale or with fewer dark ones on prosternum; hairs on sides of tergites 1-4 (base) entirely whitish; pale scaling in bands on abdomen above more straw-coloured or pale yellowish discally and white on sides; middle and hind femora with more spines below, more than 5 on hind ones below.
 194
- (b) Antennal joint 3 shortly conical, only about $1\frac{1}{2}$ times combined length of 1 and 2, its style about or nearly half length of joint; sides of face, scutellum and entire abdomen above, in ♀ at least, black, the venter mostly black and the sternites with much narrower reddish hind margins; hairs in propleural tuft and on prosternal part with numerous or with mainly dark hairs; hairs on sides of tergites 1-4 not entirely white; pale scaling in bands on abdomen above snow-whitish, even discally; middle and hind femora with much fewer spines, only about 5 on hind ones below.
 ♀ *hyaloptera* n. sp. (p. 890)
194. (a) Entire or greater part of face, entire antennae or at least joints 1 and 2 and lower surface of 3, and legs pale yellowish or salmon pinkish; wings with the base and costal cell, even in ♀, only feebly subopaquely whitish, the first basal and marginal cells being clear like rest of wings; hairs on sides of face black like rest of hairs on head in front; scales across hind margins of tergites, especially in 4-7, white; front tarsi with denser and longer hairs, especially in ♀; antennal joint 3 more conical, more tapering.
 ♂ ♀ *inornata* Lw. (p. 889)
- (b) Greater part of face (excepting only yellowish buccal margin) and entire antennae black, and legs much darker, more brownish; wings with the base, costal cell, first

basal cell and to a variable extent basal part of marginal cell tinged subopaquely yellowish, in ♂ at least; hairs on sides of face sericeous yellowish; scales across hind margins of tergites and more especially 4-7 mainly or mostly black; front tarsi with slightly less dense and shorter hairs; antennal joint 3 stouter, less tapering, more rod-like. ♂ *nigrifimbriata* n. sp. (p. 890)

195. (a) Wings yellowish brownish in more or less basal two-thirds, leaving only the apical part and apical parts of middle three posterior cells clearer to a variable extent; discoidal cell distinctly more produced and acute apically, its upper vein distinctly more convexly curved outwards near apex, its apical cross vein longer, more curved inward, more subparallel to hind margin; sides of abdomen (viewed from above) without any or with fewer whitish scales extending round from inflexed white-scaled sides below. ♂ ♀ *argillocosmia* n. sp. (p. 898)

- (b) Wings mainly clear glassy hyaline, only the base, costal cell and to a lesser extent first basal cell and a little more than basal half of marginal cell in ♀ and even to a very much lesser extent in ♂ pale yellowish; discoidal cell distinctly very much less produced apically, distinctly more subtruncate, its upper vein only slightly and feebly curved outwards apically, its apical vein shorter, straight and more oblique to hind margin; sides of abdomen (viewed from above) with some whitish or white scales extending round from inflexed white-scaled sides below. ♂ ♀ *pleroxantha* Hesse (p. 900)

196. (a) Head in front and face in profile more convexly rounded or bulging, the latter distinctly broader, blunter, less conically pointed, its base not or scarcely or only feebly transversely depressed and its apex not tending to be emarginate or indented for reception of proboscis; wings vitreous hyaline, but the base and entire costal cell opaquely yellowish; squamae darker, brownish or yellowish brown; scaling on face and front part of frons, though brilliantly shining, tending to be less iridescent, more silvery; scaling on venter tending to be more uniformly or more extensively white, or more uniformly distributed, with less extensive dark ones and less demarcated into conspicuous cross bands separated by black ones. 197

- (b) Head in front in profile not continuously convexly rounded, the face more distinctly or even conspicuously separated from frons by a slight or often conspicuous transverse depression, the face itself more conically pyramidal or more sharply pointed apically, its apex sometimes tending to be slightly indented or more deeply sulcate below for reception of proboscis; wings, if entirely hyaline, with at least costal cell not opaquely yellowish and, if base and latter are yellowish, wings are faintly tinged smoky greyish or brownish; squamae distinctly paler, more whitish and, if brownish, costal cell not opaquely yellowish; scaling on head in front and on thorax, scutellum, abdomen posteriorly and sternopleuron more brilliantly shining, resplendent, opalescent mother of pearl, metallic greenish or bluish iridescent and, even if dark on some sites, the scales are resplendent and shining iridescent or anthracite-like; scaling on venter more conspicuously in form of contrasting bands of white and black ones. 198

197. (a) Entire frons and greater discal part of face or basal part of latter continuously black; scaling on sides of thorax above slightly paler, more greyish white, that in patch on sternopleuron more white and shining silvery; those discally on tergites 4-7 with more pale ones in addition to white ones across bases and hind margins; venter with fewer dark scales. ♂ ♀ *iridipennis* n. sp. (p. 891)

- (b) Anterior part of frons either yellowish on each side just above and behind antennae and in middle, or arcuately yellowish across from antenna to antenna and right down broadly on each side of face (the black on face and between antennae tending to form a large discal spot); scaling on sides of thorax like that discally, very dark, resplendent, shining anthracite-like, and patch on sternopleuron dark, but resplendent, metallic bluish-green or iridescent; scaling on tergites 4-7, other than the whitish opalescent ones, with more extensive dark resplendent ones; venter with more black scaling in addition to white ones. ♂ ♀ *Namaqualand* var. of *iridipennis* n. sp. (p. 893)

198. (a) Interocular space on vertex in both sexes very broad, scarcely narrower in ♂ than in ♀; conical face distinctly longer and larger; scaling on frons and face brilliantly

metallic-shining, pinkish, greenish or bluish iridescent, not very dense, and individual scales smaller; pale ones on thorax and scutellum above and those on posterior part of abdomen above brilliantly metallic-shining, greenish or bluish, or reddish iridescent, these scales smaller; patch on sternopleuron snow-white; wings distinctly, though faintly, tinged smoky greyish, the base and costal cell subopaquely yellowish; discoidal cell tending to be more often subtruncate or more obtuse apically; legs darker to black, mostly dark-scaled; antennal joint 3 on the whole stouter, longer, its style less distinct. ♂ ♀ *parvicellula* Bezz. (p. 893)

- (b) Interocular space in ♂♂ very narrow, the eyes sometimes almost contiguous behind ocellar tubercle, and in ♀♀ markedly narrow, much less than 3, scarcely 2, times width of tubercle; conical face distinctly shorter, smaller; scales on head in front larger and broader, sometimes much denser, brilliantly mother-of-pearl or iridescent and, if dark, gleaming pearly, those on entire frons in ♂♂ sometimes forming a very dense and conspicuous brilliantly mother-of-pearl patch and those on frons and face in ♀♀ sometimes also fairly dense, brilliantly pale iridescent; scales on thorax and scutellum and on apical part of abdomen broader, either paler opalescent or dark resplendent, with pearly gleams; patch on sternopleuron opalescent or mother-of-pearl, even if whitish, but sometimes appearing dark; wings very clear glassy hyaline, highly iridescent, the costal cell either not yellowish or only so basally; discoidal cell more constantly acute apically; legs sometimes paler, sometimes with much or more pale scaling; antennal joint 3 less stout, tending to be shorter or sharply conical, its style more distinct. 199
199. (a) Transverse depression between frons and face very distinct, much deeper; hairs on entire pleurae, sternal part and coxae white; prealar, postalar and scutellar bristles pale; scaling on thorax above paler, more pearly or iridescent; that on abdomen above, apart from the dense white ones across sides of base of tergite 2, across base of 3 and sides basally of 4, 6 and entire or broad sides of 7, with more whitish mother-of-pearl ones across apices and bases of 4-6 (or 7), and fewer dark ones posteriorly; sternopleural patch more conspicuous, more whitish opalescent; frons in ♂ with a conspicuous patch or brush of very dense opalescent scales and hairs; hairs on extreme sides of face pale; legs paler and basal halves of hind ones yellowish and pale-scaled; interocular space on vertex in ♂ very narrow, the eyes subcontiguous behind ocellar tubercle. ♂ ♀ *opalina* n. sp. (p. 894)
- (b) Transverse depression between frons and face less distinct, much shallower, or only feebly or scarcely indicated; hairs on propleural part, lower part of mesopleuron (or at least in anterior propleural part), sternal part and intermixed on coxae dark, not entirely pale; prealar bristles and some hairs on scutellum black; scaling on thorax above darker, gleaming dark purplish iridescent or anthracite-like; scaling on abdomen above, apart from similarly arranged white and pearly ones, with more dark resplendent, iridescent-gleaming ones posteriorly above, even scales across hind margin of last tergite sometimes not entirely white; sternopleural patch less conspicuous, less dense, sometimes appearing darker, with more greenish or bluish iridescence; frons in ♂♂ as in ♀♀, without a dense brush, but with normal opalescent and iridescent scaling; hairs on sides of face dark or black; legs darker, dark-scaled; interocular space on vertex in ♂♂ distinctly broader, only a little narrower than ocellar tubercle. 200
200. (a) Entire or greater part of propleural tuft and lower part of mesopleural tuft black or very dark; white scaling across base of tergite 2 more or less confined to sides; antennal joint 3 distinctly more club-like, more rapidly narrowed apically from broad base; transverse depression between frons and face scarcely or not evident; base of wings and costal cell subopaquely whitish; squamae whitish. ♂ ♀ *perlucida* n. sp. (p. 896)
- (b) Greater part of propleural tuft straw-coloured yellowish, only its anterior and lower anterior part with black hairs, and lower part of mesopleural tuft also more straw-coloured yellowish; white scaling across base of tergite 2 extending narrowly right across discally; antennal joint 3 distinctly stouter, more conical, less club-shaped, only gradually narrowed apically from the slightly broader base; transverse depression

at base of face distinctly more evident, deeper; base of wings up to cross vein in costal cell distinctly darker, more opaquely yellowish; squamae brownish or brown.

♂ *aerata* n. sp. (p. 897)

201. (a) Hind legs with normal scaling or, if with dense longish ones on tibiae, these are slender and narrow, not broad, elongate and cuneiform and these do not give the legs a conspicuous feathery appearance; wings either predominantly hyaline or uniformly velvety black, but with a whitish apex, or *Litorrhynchus*-like with a narrowish or broadish clear oblique indentation in the middle in hinder half; discoidal cell not markedly narrowed or contracted in middle, and middle cross vein at about or more usually slightly before middle of discoidal cell; apical part of second vein normally sinuous or S-curved; head and body above with narrower yellowish, whitish and dark or black scales which, though sometimes gleaming, without a metallic sheen; transverse patch of denser hairs across frons less dense, not brush-like; humeral tubercle normally developed, relatively smaller and with dense hairs. 202

- (b) Hind legs with very dense, long, broad, flattened, bat-shaped, cuneiform scales which give them a very conspicuous feathery appearance; wings very darkly infuscated to end of second vein and from there irregularly across to apex of first posterior cell, the apical part clear, with the base, more than basal half of first basal cell, second basal cell and anterior part to near base of submarginal cross vein very dark purplish brown and with metallic reflections, the rest of infuscated area very dark, dull velvety blackish brown, but with slight yellowish in front of submarginal cross vein and apical part of anal cell, and with very narrow, shining, whitish borders along cross veins in apical and posterior parts and before base of discoidal cell; discoidal cell markedly contracted in middle and middle cross vein a little beyond its middle; apical part of second vein more strongly S- or Z-shaped; head and body above with broadish, copper-reddish, bronze-coloured and especially blue metallic-shining scales; transverse patch of dense black hairs and scales across frons very dense, brush-like; humeral tubercle relatively larger, with copper-reddish, metallic-shining scales and fewer and sparser hairs. ♂ ♀ *E. (Pterobates) apicalis* (Wied.) (p. 905)

202. (a) Wings more elongate, more gradually narrowed apically, predominantly hyaline, or, with the exception of a whitish apex, entirely black, or infuscated *Litorrhynchus*-like and with the apex and a posterior indentation in middle hyaline, or with dark cross bands separated by hyaline ones, without hyaline fenestrae on cross veins; first posterior cell narrowed apically and second and third posterior cells not or less parallel-sided, not rhomboidal; apical vein of discoidal cell sinuous or S-shaped, the cell itself not entirely truncated; anal cell distinctly more narrowed apically, the cell itself very much narrower than second posterior cell; style of antennal joint 3 very long and slender, more than half as long as, more often as long as or even longer than joint, the latter relatively shorter, more conical or even bulb-like; interocular space on vertex in ♂ broader, considerably broader than ocellar tubercle; scaling on body without iridescent or opalescent ones; legs with the spines and spicules well developed. 203

- (b) Wings (pl. ii, fig. 11) shortish, broad, more rapidly narrowed apically, with a *Thyridanthrax fenestratus*-group type of pattern, consisting of a dark blackish brown infuscation extending from base to end of costal cell and then posteriorly and backwardly more or less zigzagly across to end of anal cell, leaving the rest iridescent hyaline; basal halves of anal and axillary cells, the base, a ring around a dark island in second basal cell and base of first basal cell, a spot at end of anal cell and fenestrae on middle cross vein and base of second vein and to a lesser extent on basal veins of third and fourth posterior cells yellowish white; first posterior cell much broadened apically, about as broad as second posterior cell, the latter and third posterior cell almost parallel-sided, rhomboidal; apical vein of discoidal cell straight, the cell itself truncated; anal cell broad, quite as broad as second posterior cell and broadly open; style very much shorter, considerably less than half length of antennal joint 3, the latter more elongate-conical; interocular space in ♂ markedly narrow, only about as broad as ocellar tubercle; legs with the spines on femora and to a certain extent spicules on tibiae poorly developed; scaling on body above and below with iridescent and opalescent ones. ♂ ♀ *formosula* Bezz. (p. 903)

203. (a) Entirely black species, with the hairs, bristles and scales on body above and below entirely black, only some hairs in plumula sometimes whitish; wings broad, intensely velvety black, only the apex hyaline whitish and the areas on cross veins and bifurcations shining blackish brown or brownish in certain lights; axillary lobe relatively broader, more subangularly rounded posteriorly, the wings thus more truncate basally; face more pointed, its apex tending to be more upwardly directed and its base more transversely depressed. ♂ ♀ *nemesis* (F.) (p. 901)
- (b) Not entirely black species, the head and body with much reddish, yellowish or brownish, with all the hairs or scaling not entirely black, some scaling on head and abdomen at least pale, whitish or yellowish, or even predominantly pale; wings not predominantly black, either infuscated *Litorrhynchus*-like in which a blackish brown or yellowish brown infuscation occupies basal two-thirds, the apical part being clear and an oblique narrowish or broadish clear indentation being also present in middle, dividing the infuscation into two bands, or wings with darkish cross bands separated by hyaline bands, or wings predominantly hyaline; axillary lobe more broadly or arcuately rounded behind; face broader, blunter, straight or more convex in profile, not transversely depressed basally. 204
204. (a) Wings predominantly hyaline, only the base up to bases of cells or a very little beyond and sometimes costal cell or even first basal cell to a lesser and fainter extent blackish brown or dark; apical vein of discoidal cell shorter, only slightly sinuous or only feebly S-curved; second posterior cell more rhomboidal, its sides less contorted; hairs and scaling on body below more conspicuously and contrastingly white, sometimes markedly dense, the white scales on sternopleuron and coxae usually very conspicuous; white scales on abdomen arranged either densely across hind margins of tergites and sternites or as broadish bands across hind margin of tergite 1, on sides basally of 2, broadly across 3, 4, 6 and 7, and densely on venter. 205
- (b) Wings not predominantly hyaline, with a pattern consisting of an extensive infuscation broken up by one or two hyaline cross bands in addition to hyaline apex, or pattern consists of a yellowish brown to blackish brown infuscation extending to level of base of submarginal cross vein or slightly beyond it, divided more or less into two bands by a clear indentation in middle which does not extend anteriorly beyond fourth vein or discoidal cell; apical vein of discoidal cell longer, distinctly more S-curved; second posterior cell usually more contorted, its base produced; hairs and scaling on body below sometimes mostly dark and, if mainly pale, not conspicuously and contrastingly white, distinctly less dense, usually not conspicuously white and dense on sternopleuron and coxae; white scaling on abdomen either not concentrated as marginal bands and, if in form of cross bands, these not on all tergites mentioned above. 207
205. (a) Slightly larger form, about $17\frac{1}{2}$ mm. long, with rather longish wings (wing-length of about 22 mm.); costal cell less dark, scarcely subopaquely yellowish, the dark base of wings thus well marked off; basal hook of wings broader, flattened; discoidal cell more produced, more acute apically; abdomen mainly black above and below in ♀ at least, only narrowish hind margins of tergites reddish; legs darker, dark reddish or dark brown; all the hairs on head in front and hairs and bristly ones on rest of body whitish or pale, excepting only a dark tuft at apex of face, a few shortish dark prealar bristles, some dark intermixed postalar ones, scutellar bristles, short black hairs across tergites and longer black ones on last tergite and sternite; upper part of mesopleural tuft, plumula and tuft at base of abdomen deep golden, ochreous or orange yellowish; white scaling on abdomen arranged densely across hind margins of tergites and sternites; white scales on sternopleuron and coxae more hair-like, less conspicuous; legs with less white scaling; face relatively broader, blunter; ovipositor in ♀ with 7 spines on each side. ♀ *marleyi* n. sp. (p. 885)
- (b) Smaller forms, usually less than 17 mm. long, with shorter wings, only about $10\frac{1}{2}$ –16 mm. long; costal cell darkened to same extent as base of wings and sometimes even the base slightly more extensively darkened, even basal half of marginal cell, first basal cell and extreme base of second basal cell infused or dark; basal hook distinctly less broadened; discoidal cell less produced, more subacute apically; abdomen either with much red or broadly red on sides and mainly reddish below in both sexes, or

venter at least mainly red; legs with at least femora paler, more yellowish; hairs on head and antennae not all or mainly pale, and those on sides of abdomen from apical half of tergite 2 black; mesopleural tuft whitish or yellowish, but plumula and tuft at base of abdomen white; white scaling on abdomen above arranged across hind margin of tergite 1, on sides basally of 2, broadly across 3, 4, 6 and 7 and densely and broadly on venter; white scales on sternopleuron and coxae broader, lanceolate, more conspicuous; legs with more and broader white scales; face relatively narrower, more pointed; ovipositor in ♀♀ with fewer, only about 5 spines on each side. . . . 206

206. (a) Wings with only the base and costal cell and to a feeble extent first basal cell yellowish brownish; spots at base of fourth posterior cell and on middle cross vein absent or scarcely indicated; axillary lobe distinctly broader, more dilated or arcuately rounded near base; greater part of frons, face and lower half of head behind eyes, prosternal and even mesopleural parts, broad sides of abdomen and broadish hind margins of tergites yellowish reddish to orange reddish; tibiae paler; upper part of mesopleural tuft and propleural and prosternal hairs white or more whitish; basal tooth of claws longer, more strongly developed; slightly larger form, about 13–16 mm. long, with a wing-length of about 13–16 mm. . . . ♂ ♀ *villaeformis* Bezz. (p. 881)

(b) Wings with not only the base, but also costal cell, basal half of marginal cell, first basal cell and even extreme bases of second basal and first posterior cells, especially in ♀, dark blackish brown to black; spots at base of fourth posterior cell and on middle cross vein more evident; axillary lobe narrower, more normally rounded posteriorly; frons and discal part of face and head behind eyes black, the propleural and prosternal parts dark like rest of pleurae, and only the narrowish or narrower sides of tergites 2 and 3 reddish; tibiae darker and even coxae darker; upper part of mesopleural tuft, propleural tuft and prosternal hairs yellowish or golden yellowish like collar; basal tooth of claws minute, spine-like; slightly smaller form, about 11–11½ mm. long, with a wing-length of about 10½–11 mm. . . . ♂ ♀ *bolbocera* n. sp. (p. 883)

207. (a) Wings with a broad, hyaline, basal band across more than basal halves of second basal, anal and axillary cells in addition to the clear middle band or indentation, the second dark band beyond the latter clear band much narrower and very narrow posteriorly where it just about reaches hind margin along vein between second and third posterior cells; infuscation itself more yellowish, with a pallid or yellowish spot on middle cross vein and base of second vein; discoidal cell slightly more dilated apically, with the middle cross vein tending to be at about or a little beyond its middle; hairs on sides of abdomen distinctly less dense and shorter and those on sides of face and on coxae pale; whitish or pale scaling on abdomen above more concentrated as transverse bands across bases of all the tergites; antennal joint 3 longer, slightly curved. . . . ♂ ♀ *mozambica* n. sp. (p. 788)

(b) Wings without a clear basal band across second basal cell and thus with only the hyaline band or indentation at middle, the infuscation more *Litorrhynchus*-like, with the dark band beyond clear middle indentation or middle band very much broader, very broad on hind margin; infuscation itself much darker, dark brownish to blackish brown or almost black and with faint or distinct yellowish or pallid spots on middle cross vein and base of second vein; discoidal cell not or less dilated apically, more produced apically, with the middle cross vein before or much before its middle; hairs on sides of abdomen distinctly longer, denser, or very dense, and those on entire face and the bristly hairs on coxae black; whitish or pale scaling on abdomen above either not present across bases of all the tergites or if on all the tergites they are more dispersed; antennal joint 3 shorter or very short, more bulb-like. . . . 208

208. (a) Infuscation in wings extending up to base of submarginal cross vein and either straight or zigzag across to second posterior cell, not including apical third of first posterior cell and leaving also a greater part of enclosed submarginal cell clear; clear hyaline whitish indentation in middle reaching fourth vein, more oblique, including apical part or half of anal and axillary cells and its margins straighter; second vein only slightly recurved apically; lower vein of discoidal cell not or only slightly bent outwards; middle cross vein nearer middle or only slightly before middle of discoidal cell; antennal joint 3 more elongate-conical, its style a little shorter or at least not

very much longer than joint itself; transverse patch of dense hairs across frons less dense and hairs on sides of face not denser than on rest of face; hairs on pleurae either pale yellowish, yellowish whitish or entirely black; red on sides of abdomen less extensive, usually leaving more of discal part black and sides of face reddish or yellowish like rest of face.

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- (b) Blackish brown infuscation in wings extending to slightly beyond base of submarginal cross vein and lobe-like in marginal cell to near its end, then zigzag across to end of first posterior cell which is entirely included even to its apex and leaving only extreme apex of enclosed submarginal cell clear; clear, more hyaline, middle indentation not reaching fourth vein, but only to about half width of discoidal cell, less oblique, not including the apical part of anal cell, its margins irregular, more like those of *Litorhynchus*; second vein deeply recurved apically; middle cross vein much before middle of discoidal cell; antennal joint 3 shorter, more bulb-shaped, its style very slender, longer than joint; transverse patch of hairs across frons relatively denser, more brush-like and hairs on sides of face also dense, denser than sparse ones on rest of face; hairs on pleurae fulvous brownish or reddish brown; red on sides of abdomen relatively broader, leaving only a central row of black triangular spots, and sides of face with a dark spot or infusion, the face itself orange yellowish.
- ♂ ♀ *decipiens* Bezz. (p. 833)
209. (a) Apical margin of yellowish brownish infuscation in wings irregular, dentate; clear indentation in middle broader, its margins irregular, its posterior part occupying at least apical halves of anal and axillary cells, its outer apical part sharply pointed; clear areas in wings slightly more whitish; front part of collar above and hairs on pleurae sericeous yellowish to yellowish, the tuft on sides of tergite 1 and base of 2 more whitish and hairs on venter whitish; hairs on sides of abdomen shorter and less dense; streaks on sides of thorax whitish and scales on abdomen above and below mostly white, those across bases of tergites 2 and 3 and more on the sides of the others denser, more band-like; legs paler yellowish red, yellowish-scaled below; spines on hind femora shorter, more numerous and dense scales on hind tibiae also shorter; interocular space on vertex much broader, considerably broader than combined length of antennal joints 1 and 2; face slightly longer, more pointed, and head in front in profile straighter, less convex; larger form, about 12–18½ mm. long, with a wing-length of about 15½–24½ mm. ♂ ♀ *strenua* Lw. (p. 802)
- (b) Apical margin of the much darker blackish brown infuscation in wings straight; clear middle indentation narrower, its margins straight and its posterior part occupying less than apical half of anal and axillary cells; clear parts in wings more hyaline; all the hairs and bristles on head and body including base of abdomen, excepting only whitish plumula and sometimes extreme yellowish front part of collar above, very dark velvety blackish brown to black; hairs on sides of abdomen denser and longer; streak on side of thorax brownish, and scaling on abdomen above and below mostly dark or black, only a broadly interrupted band across tergite 3 and a patch on sides of 6 and 7 white and the scaling on head in front gleaming yellowish; legs darker reddish brown, black-scaled; spines on hind femora relatively fewer, but longer and dense scales on hind tibiae longer; interocular space distinctly narrower, only a little broader than, or even subequal in breadth to, combined length of antennal joints 1 and 2; face blunter and head in front in profile relatively more convex; smaller form, about 11–12½ mm. long, with a wing-length of about 13–14 mm. ♂ ♀ *praefica* Lw. (p. 804)

Metapenta-group

Representatives of this group are chiefly characterized in having the discoidal cell in wings much dilated outwardly, its lower apical angle very prominently or sharply angular, projecting considerably into third posterior cell and provided with a long appendix from this angle which extends right across the third cell

as a cross vein to fourth posterior cell, dividing the third posterior cell into two cells and thus producing five posterior cells.

Exoprosopa pentala Macq.

(Macquart, p. 47 and tab. 18, fig. 3, *Dipt. Exot.*, ii, 1840; Bezzi, p. 139 and pl. ii, fig. 26 (nec 25), *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 231, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Syn. = *reticulata* Loew, p. 244 and tab. ii, fig. 34, *Dipt. Faun. Südaf.*, i, 1860; Bezzi, p. 231, *The Bombyliidae of the Ethiopian Region*, 1924; Paramonow, p. 79, *Trav. Mus. Zool.*, No. 11 (*Acad. d. Sc. d'Ukraine*, No. 9), 1931.)

This species which is the first one of the *Metapenta*-group to have been described shows a combination of characters which easily distinguishes it from species belonging to other groups within this genus. It appears to be variable in size, in the colour of the face, scutellum and legs, the extent of the red on sides of the abdomen, the extent of the black or the pale hairs on the pleurae and in metapleural tuft and the extent of the development of spots or clouds or infusions along the veins in the wings. This tendency to vary has resulted in the two extreme forms having been described as separate species. From the descriptions and figures of wings of both Loew and Macquart and from specimens from various localities in the collections before me, it is quite evident that Loew's species *reticulata* is synonymous with Macquart's *pentala* and that the only status that could be accorded it, is that of a geographical variety or form of the latter. The species is characterized as follows:

Body mainly black; face yellowish red or reddish to a variable extent, often with a dark spot on sides and sometimes entirely dark as in some forms (*reticulata*); antennal joints 1 and 2 also reddish or at least 1, and also greater part of scutellum (entirely or predominantly black in *reticulata*), sides of tergites 2 and 3 broadly in typical form (much reduced or even wanting in *reticulata*), to a certain extent hind margins of tergites, sometimes greater part of venter or at least broadly on each side of a series of central black spots, and the legs, the latter darker in some forms (*reticulata*). *Vestiture* with the hairs and bristles mainly black; those in anterior part of collar above, upper part of mesopleural tuft to a variable extent, propleural tuft, anterior part of or even entire metapleural tuft as well as intermixed hair-like scales on pleurae yellowish to golden yellowish; tuft at base of abdomen on each side cream-coloured or whitish; hairs on each side basally of tergite 2 and those on at least basal half of venter also pale or yellowish; scaling on head in front yellowish to golden; fine scaling on thorax above in form of pale yellowish to yellowish brown ones and dark streaks; streak on sides of thorax pale yellowish or whitish; scaling on abdomen composed of whitish or yellowish white and black ones, the pale ones arranged densely and broadly on sides and conspicuously band-like across base

of tergite 2 and sparsely or indistinctly across bases and bisinuate across hind margins of rest of tergites; longish scales on extreme sides of abdomen also blackish; scaling on venter mostly whitish or yellowish, in two broad lateral bands, separated along middle and sometimes flanked on extreme sides by dark ones; scales on legs black and yellowish, the former more on upper surfaces, but sometimes almost covering entire legs. *Wings* characteristic and as figured by Macquart, Loew and Bezzi (loc. cit.), dark chocolate-brownish in costal and basal parts to a variable extent, becoming clearer apically and posteriorly, appearing distinctly reticulate in hinder half, with infusions along the veins, with rather distinct, conspicuous, rounded spots or clouds on cross veins and bifurcations and also at end of second vein and base of vein separating second and third posterior cells; middle cross vein just before or at about middle of discoidal cell; enclosed or cut-off part of third posterior cell usually shorter than second part of third posterior cell, but as long as or even slightly longer in some forms. *Head* with antennal joint 3 about twice to even a little more than three times length of its style. *Hypopygium* of ♂ (text-fig. 219) with two shortish, spine-like processes on dorsal part of aedeagal apparatus just where the tip of aedeagus protrudes; ventral aedeagal process striated ventrally; basal strut narrowish, chopper-shaped.

In the British, Durban, Transvaal and South African Museums and in the Commonwealth Institute.

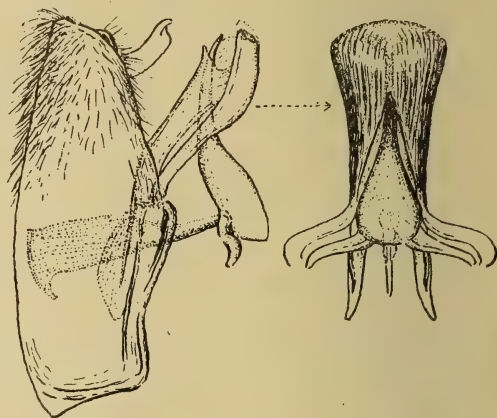
Length of body: about 9–13 mm.

Length of wing: about 10–14½ mm.

Locality: South-western, Southern and South-eastern Cape to Natal, Zululand and Eastern Transvaal.

Distinguished from most other species of the *Metapenta*-group by the reticulate and distinctly spotted wings, the rather shortish cut-off part of third posterior cell and the rather conspicuous transverse band of white scaling across base of tergite 2.

It is quite probable that *pentala* may prove to be specifically identical with some of the South African specimens which Wiedemann described collectively as *venosa* in 1828 (p. 280, *Aussereurop. Zweifl. Ins.*, i). According to Paramonow (p. 80, *Trav. Mus. Zool.*, No. 11, 1931) the representatives of this species in the Berlin Museum which have been partly determined by Wiedemann and partly



TEXT-FIG. 219. Side view of hypopygium and ventral view of detached aedeagal apparatus of ♂ *Exoprosopa pentala* Macq.

by Loew do not all belong to the same species; some specimens belonging to the *Metapenta*-group and others not. Only a careful examination of the original specimens on which Wiedemann based his description will show whether some of these are identical with Macquart's *pentala* and whether the latter species should be relegated as a synonym of *venosa* s. str. Such an examination will at the same time settle the point whether a new specific name should or should not be given to the specimens in the Berlin Museum and to others in the British and South African Museums which belong to the same species which Loew and Bezzi subsequently determined as *venosa* as a result of Wiedemann's original confusion of different species.

Exoprosopa corvina Lw.

(Loew, p. 243 and tab. ii, fig. 35, *Dipt. Faun. Südafr.*, i, 1860; Bezzi, p. 139, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 231-2, *The Bombyliidae of the Ethiopian Region*, 1924.)

This species too appears to be slightly variable, but is easily recognizable by certain constant characters which distinguish it from *pentala* and other South African species belonging to this group. It is characterized and distinguished from other species as follows:

Body with the face yellowish red or yellowish brown, with a constant dark or blackish spot on sides; frons yellowish only on sides anteriorly; greater part of scutellum and sides of tergites 2-5, or even entire sides, in ♂ and 2-4 in ♀, hind margins of tergites and greater part of venter, excepting a central row of black spots and in some forms the posterior darker half, also yellowish; legs usually yellowish or yellowish red, sometimes appearing dark due to dark scaling. *Vestiture* with some or numerous yellowish or golden yellowish hairs in upper part of mesopleural tuft and usually also in propleural tuft and to a variable extent anteriorly in metapleural tuft; yellowish hairs also at base of abdomen on sides, on sides basally of tergite 2 and along two submedial streaks on venter; scaling on head in front yellowish, that on thorax above in streaks of fine, pale yellowish or yellowish brown and dark or brownish ones; streak on sides of thorax yellowish, dense; hinder part of scutellum with pale scaling; scaling on abdomen above without the broad, conspicuous band of white ones across base of tergite 2 which is present in *pentala*; rest of scaling whitish or yellowish whitish and black, the pale ones very dense on sides of tergites and posteriorly, less dense across hind margins where much black scaling is also present in addition to dark ones discally on tergites; scaling on venter mostly dark, on the whole darker than in *pentala*, with two much narrower submedial streaks of pale ones; scaling on legs predominantly black. *Wings* as figured by Loew (loc. cit.), more uniformly dark brownish or chocolate-brownish than in *pentala*, the hinder half more infused, distinctly less reticulate, characteristic clearer streaks present only in apical two cells and in apical part of discoidal cell, those in posterior cells and end of marginal cell less extensive, only indicated;

spots and clouds in hinder half smaller, usually less conspicuous and sometimes even absent, without a spot at end of second vein; enclosed or cut-off part of third posterior cell longer than second part of the cell. *Hypopygium* of ♂ resembles that of *pentalis*, but differs in having slightly broader basal parts with relatively shorter hairs; two slightly stouter processes dorsally at base of projecting aedeagus; basal strut relatively shorter, broader, more racket-shaped.

In the Transvaal and South African Museums.

Length of body: about 10–14 mm.

Length of wing: about $11\frac{1}{2}$ –15 mm.

Locality: Eastern Transvaal, Southern Rhodesia, South-West Africa and Nyasaland.

Exoprosopa cadicerina Bezz.

(Bezzi, p. 232, *The Bombyliidae of the Ethiopian Region*, 1924.)

Of this species, which Bezzi described from Natal, there is only one ♀-specimen also from Natal in the collections before me. It is labelled as *cadicerina* by Bryant and was evidently compared with the types in the British Museum. This specimen though agreeing in most respects with Bezzi's long description, however, differs very little from *corvina* and probably only represents a larger form or variety of it. It differs from more typical ♀♀ of *corvina* in being relatively larger, about $14\frac{1}{2}$ mm. long, with a wing-length of about 17 mm.; in having the entire face and to a certain extent front part of frons reddish; and in having slightly broader and relatively longer wings, with larger clearer areas in discoidal and posterior cells and with relatively longer enclosed or cut-off part of third posterior cell.

According to Bezzi's description *cadicerina* is characterized by its large size, its broad abdomen, its entirely red face and red anterior part of frons, broad red sides of abdomen, pale reddish legs, its black mesopleural tuft and completely infuscated wings in which only the outer submarginal cells and all the posterior cells (except first) have a clearer central area. All these characters are also to be found in *corvina*. There is thus a strong suspicion that *cadicerina* only represents a large form of *corvina* in which the red on face is slightly more extensive and the hinder part of wings has more distinct or larger clearer areas in cells.

In view of the absence of correctly compared specimens, this specimen is provisionally referred to *cadicerina* and the species itself is considered as a valid one.

Exoprosopa furvipennis n. sp.

(Syn. = *corvina* Bezzi, in part, nec Loew, p. 139, *Ann. S. Afr. Mus.*, xviii, 1921.)

A ♀-specimen in the South African Museum collections from Grootfontein in South-West Africa, was referred to *corvina* Lw. by Bezzi. From a careful

comparison of this specimen with typical specimens of *corvina* and with Loew's description of the species, it is quite obvious that this specimen is not Loew's species. It and another damaged ♀-specimen in the Transvaal Museum differ from *corvina* in the following respects: The black on frons extends slightly farther down face between antennae and the black patch or infusion on sides of reddish face is distinctly larger, more extensive; black across base of scutellum more extensive; reddish on sides of abdomen and also on venter less extensive; legs, even without the dense black scaling, slightly darker, more brownish. *Vestiture* with the hair on pleurae and in entire metapleural tuft black, that at base of tergite 2 black like rest of hair on abdomen above, excepting only pale tuft at base; hair on venter also entirely dark; scaling on abdomen above with the black ones more extensive, fewer and sparser whitish ones on sides and across hind margins, the black ones even invading dense pale ones on sides of tergites 2 and 3; venter and legs entirely dark-scaled. *Wings* differ in being distinctly more uniformly blackish brown, with only the outer submarginal cell and apical part of discoidal cell slightly clearer, the second submarginal cell scarcely clearer along its middle and without any or scarcely any distinct indications of clearer areas in posterior cells; darker spots even in anterior half of wings obscure or indistinct and very indistinct or wanting in hinder half; the enclosed or cut-off part of third posterior cell relatively longer than in *corvina* and very much longer than second part of this cell.

From 2 ♀♀ (type in the South African Museum, paratype in the Transvaal Museum).

Length of body: about $9\frac{1}{2}$ –11 mm.

Length of wing: about 11–12½ mm.

Locality: South-West Africa: Grootfontein (Lightfoot, Dec. 1918) (type).

The paratype has no locality label, but was most likely collected in the Transvaal.

Exoprosopa melanostola n. sp.

This species is characterized by the following combination of characters which at the same time distinguish it from other South African species in this category:

Body with the face, greater part of scutellum, sides of tergites 2 and 3 very obscurely, sternopleural and hypopleural parts and the hind margins of sternites brownish or reddish brown; legs, when denuded of the dense black scaling, very dark reddish brown or piceous. *Vestiture* with the hairs and bristles on entire head, body above and below, black, but hairs in front part of collar above, plumula and tuft at base of abdomen on each side yellowish or straw-coloured yellowish; scaling on head and entire body above and below and on legs, with the exception only of some pale scaling along hind margins of eyes, dark or black, but gleaming greyish or graphite-like; that on head gleaming more greyish yellowish in certain lights. *Wings* resembling those of *pennula*, but darker,

very dark blackish brown in basal and costal parts, becoming more greyish towards apex and in hinder part, due to the apical two cells and medial or central parts of all the other cells, including anal and axillary cells, in hinder part being clearer, more greyish hyaline; distinct, conspicuous, rounded spots and clouds present at bases of cells and on cross veins as in *pentala* and developed to the same extent; enclosed part of third posterior cell distinctly longer than second part of this cell. *Legs* with the modified front tarsi rather longish, the basal joint markedly shorter than rest of joints combined.

From 2 ♀♀ (type in the Transvaal Museum).

Length of body: about 12–13½ mm.

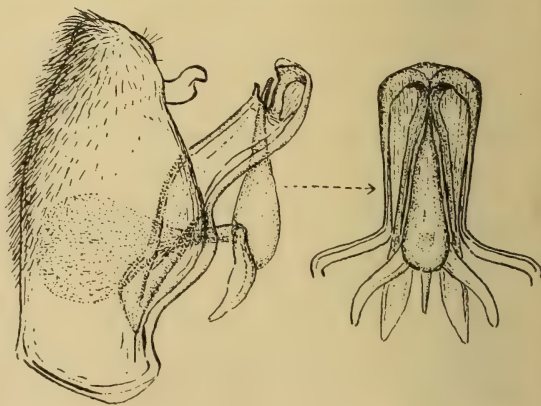
Length of wing: about 14–14½ mm.

Locality: Northern Transvaal: Nylstroom (van Dam, 16–31 Dec. 1921) (type); Plat River (Jutrencka, Jan.–Feb. 1903).

Exoprosopa atrella n. sp.

This species resembles *melanostola* very closely, but may be readily distinguished by the following characters:

Body with the face entirely dark, only an oblique streak below each antenna yellowish; scutellum only yellowish brownish or reddish brown in apical part; sides of tergites 2 and 3 and across hind margins of sternites reddish brown as in *melanostola*. *Vestiture* with the hairs and bristles on head and body above and below also entirely black, only the collar above, plumula and hairs at base of abdomen on each side being straw-coloured yellowish or whitish; scaling also mainly dark or black, but those on head in front more brownish, gleaming distinctly more yellowish; that on abdomen also not entirely black, but with some whitish ones on sides of tergites and to a certain extent sparsely across hind margins; some scaling on legs appearing more greyish in certain lights. *Wings* differing from those of *melanostola* in being distinctly more uniformly dark blackish brown to black, conspicuous clearer areas being present only in apical two cells and in apical part of discoidal cell, those in posterior cells being absent or only indistinctly indicated; spots and clouds, so characteristic of *melanostola*, much less developed, almost absent or smaller, or indis-



TEXT-FIG. 220. Side view of hypopygium and ventral view of the aedeagal apparatus of ♂ *Exoprosopa atrella* n. sp.

tinct in posterior half and one at end of second vein absent; middle cross vein distinctly more before middle of discoidal cell and first posterior cell less rapidly narrowed apically from its broadest part. *Legs* with the modified front tarsi relatively shorter, the basal joint only a little shorter than rest of joints combined. *Hypopygium* of ♂ as shown in text-fig. 220.

From 3 ♂♂ and 7 ♀♀ (holotype in the Transvaal Museum, allotype in the South African Museum and paratypes in the National Museum of Southern Rhodesia and Agricultural Department of Southern Rhodesia).

Length of body: about $9\frac{1}{2}$ –13 mm.

Length of wing: about $12\frac{1}{2}$ –15 mm.

Locality: Southern Rhodesia: Umtali (Stevenson, 30 Jan. 1924) (types), Rhodesian Museum (Feb. 1938); Vumbu Mts. (Rhodesian Museum, 2–15 Feb. 1924), Major Drysdale (28 Dec. 1936), Dept. of Agric. S. Rhodesia (10 Dec. 1942); Umzila Farm in Melsetter Dist. (Williams, 7 Dec. 1939). Nyasaland: Zomba (9 Nov. 1943). Portuguese East Africa: near Spungabera (B.R.S., P.G. 21 Jan. 1955).

Two ♀♀ from Vumbu Mts. and Umtali have been wrongly labelled as *Exoprosopa umbrosa* Lw., a species which, however, has only four posterior cells and no enclosed part of the normal third posterior cell. The ♀-paratype from Nyasaland represents a slight varietal form in which the upper part of mesopleural tuft is yellowish like anterior part of collar and the spots in wings are more conspicuous, more like those of *melanostola*. Moreover both the apical veins have spots near their ends.

Exoprosopa dubia Ric.

(Ricardo, p. 102, *Ann. Mag. Nat. Hist.*, (7), vii, 1901; Bezzi, pp. 231–2, *The Bombyliidae of the Ethiopian Region*, 1924.)

This species which Ricardo originally described from the Transvaal, is characterized as follows:

Body almost entirely black; face and scutellum entirely dark or black, the latter in some specimens sometimes with an indication of some reddish; abdomen above also entirely or predominantly black or the reddish is only confined to extreme sides of tergites 2 and 3; sternopleural and hypopleural parts dark brownish or brownish; venter usually dark, sometimes more brownish, the hind margins of sternites usually more reddish brown; legs very dark castaneous brown to blackish brown, black-scaled. *Vestiture* with the hairs and bristles mostly dark or black, only the hairs in collar above and anteriorly, some bristly hairs or part of tuft in upper part of mesopleural tuft, some hairs in anterior part of metapleural tuft and tuft on each side at base of abdomen yellowish to whitish; plumula whitish; scaling on head gleaming yellowish; that on thorax above mostly dark, but with streaks of pale or yellowish ones and with a conspicuous streak of dense yellowish hair-like scales on each side;

scutellum with pale yellowish to whitish scaling posteriorly; scaling on abdomen above mostly black or dark discally, but with dense white or whitish scales on sides and on last two tergites and sparsely or indistinctly across base of tergite 2 and hind margins of other tergites; scaling on body below and on legs dark or black. *Wings* dark blackish brown in costal part and base, becoming imperceptibly less infuscated, clearer or more greyish apically and posteriorly, the apex of marginal cell and two apical cells, though distinctly clearer, not so conspicuously contrasting with darker parts as in *corvina*, *melanostola* and *atrella*, without any or with scarcely any infuscation along vein separating two apical cells; distinct and fairly conspicuous spots or clouds present at bases of cells and on cross veins, those in hinder part sometimes smaller than those in front half; fringe of squamae pale or whitish and not dark as in preceding species. *Hypopygium* of ♂ resembles that of *atrella* (cf. text-fig. 220) but the basal parts slightly narrower, less hairy; outer angle of basal carinate part of beaked apical joints sharper; basal strut less roundly racket-shaped.

In the Transvaal and South African Museums.

Length of body: about $9\frac{1}{2}$ –14 mm.

Length of wing: about $10\frac{1}{2}$ –15 mm.

Locality: Transvaal and according to Bezzi also in South-east Rhodesia.

Easily distinguished from other species in this group by its entirely black or dark face, scutellum and abdomen, and the white scaling on sides of abdomen.

Exoprosopa cingulalis n. sp.

A large and striking species characterized as follows:

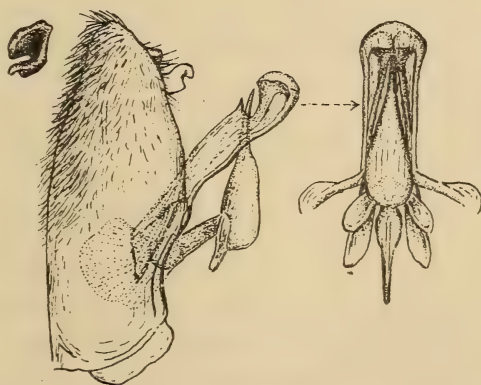
Body mainly black above; frons anteriorly above each antenna, interantennal space and base and sides of face below antennae to a variable extent and buccal rim or anterior margin of face yellowish red to a variable extent; postalar calli, greater part of scutellum, sides of tergites 2 and 3 in ♀ broadly and almost entire sides of abdomen above in ♂ very broadly (tergites 2–4 in ♂ with only a central triangular spot black) and broad hind margins of all tergites in both sexes reddish; pleurae yellowish or yellowish brown to a variable extent, more extensively so in ♂; venter in ♂ predominantly yellowish, only a central row of spots, more extensive on last two sternites, being black; venter in ♀ less yellowish on sides of black central spots, sometimes sternites, especially in hind half darkened across at least their basal halves; broad hind margins of sternites in both sexes always broadly reddish; legs yellowish brown to pale reddish brown. *Vestiture* with the hairs and bristles on head, thorax and scutellum, sides of abdomen and intermixed ones on prosternum, on mesopleuron and posterior part of metapleural tuft black; those in collar, propleural tuft, prosternum to a large extent, densely in upper part of mesopleural tuft, entirely or densely in metapleural tuft, at base of abdomen on sides, on sides basally of tergite 2 and sometimes even on sides of 3 and on venter pale yellowish or straw-coloured; scaling yellowish on head in front, whitish behind eyes and

yellowish or greyish yellowish in streaks on thorax above, separated by dark ones; streak on each side of thorax also yellowish; scaling on abdomen above in form of a broad, dense, conspicuous, white band across base of tergite 2 and as fairly dense whitish or pale yellowish white ones on sides and on last two segments and broadly across hinder halves of tergites, these bands extending broadly and triangularly to bases of tergites along the middle, the hind margin of tergite 1 and rest of surface discally above on each side, not occupied by whitish ones, covered with black scales; scales on venter mostly whitish, but sometimes dark in patches on sides; scales on legs dark and pale, the dark ones denser, more evident on upper surfaces. *Wings* relatively narrow, elongate, especially in ♂, more pointed apically than in other species in this group, brownish to chocolate-brownish in basal and costal parts, less darkly infuscated in hinder part, with clearer, more greyish hyaline areas in apical part of marginal cell, apical part of first submarginal cell, in two apical cells, in apical part of discoidal cell and of first and third posterior cells; praediscoidal clear spot relatively large; infuscations along apical and posterior veins giving wings a subreticulate appearance; distinct darker spots or clouds on cross veins and bifurcations; discoidal cell relatively much narrower than in preceding species, less dilated apically, more acute; middle cross vein just before or at about middle of discoidal cell; second posterior cell markedly obliquely rhomboidal, its basal part distinctly projecting more tongue-like; cut-off part of third posterior cell distinctly much shorter than second part of that cell and cross vein dividing them at right angles to fourth posterior cell; second or apical part of third posterior cell not so triangular as in the other species; squamae relatively larger than in other species. *Head* with the interocular space on vertex markedly broad, relatively much broader than in other species, very much broader than length of antennal joint 3, nearly or about as broad as combined length of joint 3 and its style. *Legs* with numerous spines on both anterior and posterior lower aspect of middle femora. *Hypopygium* of ♂ (text-fig. 221) with the lateral struts of aedeagal apparatus relatively short; basal strut ham-shaped, relatively short.

From 2 ♂♂ and 4 ♀♀ (types and paratypes in the South African Museum and paratype in the Transvaal Museum).

Length of body: about 15–20 mm.

Length of wing: about 18–22 mm.



TEXT-FIG. 221. Dorsal view of right beaked apical joint, side view of hypopygium and ventral view of the detached aedeagal apparatus of ♂ *Exoprosopa cingulatis* n. sp.

Locality: Namaqualand: Lekkersing in the Richtersveld (Mus. Exp., March 1935) (holotype). Karoo: Victoria West Dist. (Mus. Exp., March 1931) (allotype); Murraysburg Dist. (Mus. Exp., March 1931); Willowmore (Brauns, 25 Feb. 1926). Koup Karoo: Voëlfontein in the Prince Albert Div. (Hesse, March–April 1929).

Easily recognized and distinguished from all other species in this group by its very large size, narrowish and pointed wings, relatively narrow and acute discoidal cell, rhomboidal second posterior cell, large squamae and very conspicuous transverse white band across tergite 2.

Exoprosopa clathrata Bezz.

(Bezzi, p. 330, *Resultats Scientifiques, Ins. Dipt.*, vi, 1923, *Voyage de Ch. Alluaud et R. Jeannel en Afrique Orientale* (1911–1912).)

This is the only other described African species of the group which I have not seen. According to the description this species appears to be very near *pentalis* and *corvina* and is characterized by its reddish face, very broad reddish sides of abdomen, reddish venter, pale legs and reticulate wings.

Acrodisca-group

Representatives of this group are characterized in having the discoidal cell in wings relatively broad at its end, its lower angle always prominently or sharply angular and projecting considerably into third posterior cell as in the *Metapentalis*-group and provided with a short or fairly long stump or appendix which, however, projects freely into third posterior cell, not cutting off an extra cell as in *Metapentalis*-group. Moreover the front tibiae are usually stoutish and armed with spicules which vary much in the extent of their development, and the front femora are usually distinctly less or much less than $1\frac{1}{2}$ times length of front coxae. All these characters are, however, relative and not of a constant subgeneric value, serving only to allocate the various species to a convenient group for purposes of taxonomic arrangement.

Exoprosopa offuscata-section

Exoprosopa offuscata Bezz.

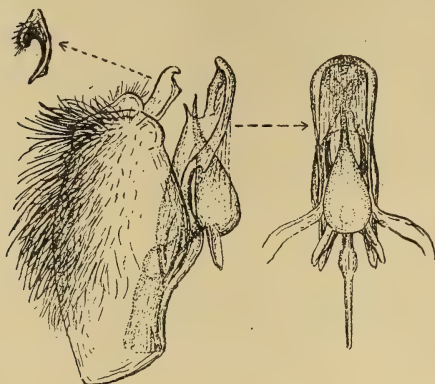
(Bezzi, p. 141 and pl. ii, fig. 27, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 235, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Syn. = ♀-type of *personata* Bezzi, p. 143, *Ann. S. Afr. Mus.*, xviii, 1921.)

This species which is very variable is characterized as follows: *Body* mainly black; front half or part of frons and greater part of face or only base of face and extreme sides, antennal joints 1 and 2 entirely or only below, postalar calli,

greater part or entire scutellum, narrowish or broad hind margins of tergites, broadish hind margins of sternites or even entire venter and sides of tergites 2 and 3 or 2-4 either very broadly and extensively or obscurely (or sometimes even entire sides of abdomen broadly) yellowish red or reddish; sutural parts of pleurae also reddish to yellowish brown to a variable extent; legs mainly yellowish, the tarsi sometimes and sometimes also upper parts or apical parts of femora and the tibiae darkened. *Vestiture* with the hairs on head in front and on antennae mainly black, but with some golden or yellowish ones on each side below antennae and with fine pale hairs across hind part of occiput, the scaling on head yellowish, that on sides behind eyes whitish; hairs in collar above and on pleurae predominantly straw-coloured, yellowish to golden yellowish, becoming paler, more whitish on prosternum, but sometimes with an admixture of a variable number of dark or black bristly ones in mesopleural tuft and on pteropleuron; fine hairs on thorax above, the notopleural, prealar, postalar and scutellar bristles black; scaling on thorax above mostly greyish, greyish yellowish to dull yellowish, with streaks of darker or brownish ones and the streak on each side paler, more whitish; hairs posteriorly on sides of tergite 1 and from hind part of tergite 2 on sides of abdomen to apex and the coxal bristles black; hairs on venter pale in basal part or half and dark posteriorly or sometimes entirely pale; scaling on abdomen above composed of whitish, yellowish and black ones, the whitish ones arranged transversely as a broadish continuous band across base of tergite 2, indistinct bands across bases of 3 and 4, but only evident on sides, and indistinct bisinuate bands across 5-7, more distinct and visible on sides and as a series of central spots, with the yellowish ones mostly across hinder parts of white bands or hind margins of tergites and the dark ones across apical discal halves of tergites 2 and 3 and basal parts on sides of white central spots; scaling below rather markedly or contrastingly white; that on legs mostly whitish, that towards apices of hind femora and sometimes on upper surfaces of front ones dark. *Wings* rather elongate, parallel-sided, either almost entirely or uniformly very dark chocolate-brownish, brownish or reddish brown to dark smoky brownish throughout, only indistinct, less infuscated areas in apical two cells and discoidal cell and to a lesser extent in some of the posterior cells, or the clearer areas in posterior cells are more evident, giving a more reticulate appearance in hinder half; spots or clouds on cross veins, bifurcations and at ends of apical veins, though slightly darker than main infuscation, visible only in certain lights, sometimes not evident at all; first posterior cell, though much narrowed apically, without a tendency to be closed apically; squamae yellowish, pale-fringed. *Head* with antennal joint 3 elongate-conical, its style at least as long as and more often longer than antennal joint 2; interocular space on vertex relatively broad, at least as broad as or usually slightly broader than length of antennal joint 3 (minus style). *Legs* with numerous spinules on front femora and spicules on front tibiae well developed; middle and hind femora with numerous spines below. *Hypopygium* of ♂ as shown in text-fig. 222, with the basal parts broadish, covered above with conspicuous,

dense, long hairs; beaked apical joints with a high, outer, carinate ridge, the beak much laterally compressed; basal strut markedly narrow; aedeagal apparatus with two dorsal processes at base of aedeagus.



TEXT-FIG. 222. Side view of hypopygium, dorsal view of the right beaked apical joint and ventral view of detached aedeagal apparatus of ♂ *Exoprosopa offuscata* Bezz.

In the British, Transvaal and South African Museums (types in the South African Museum).

Length of body: about 8–16 mm.

Length of wing: about 10–18 mm.

Locality: Koup Karoo, Moordenaars Karoo, Great Karoo, Namaqualand and Bushmanland.

Easily recognized by its rather elongated, more or less uniformly infuscated wings. At least three forms of this species are represented in the collections before me. (1) A large almost black-winged Namaqualand form, about 12–16 mm. long, with a wing-length of about 14–18 mm. in which the yellowish on face is more extensive and the black

apical spot correspondingly reduced, the red on abdomen and venter is much more extensive. (2) A medium-sized, much paler form, also from Namaqualand, in which the face is very extensively yellowish, the red on sides of abdomen very broad and extensive, the venter entirely yellowish, the hair on venter entirely yellowish and that on pleurae also entirely yellowish, without any or with much fewer dark bristles in mesopleural tuft and the wings tending to be paler, more sienna or yellowish brown. (3) A much smaller Karoo-form which may even be considered as a distinct variety, only about 8–13 mm. long, with a wing-length of about 10–15 mm., with the black on face much more extensive and the red on abdomen much reduced or even absent and the wings often with more extensive or obvious clearer areas apically and in posterior cells, and with the apical part of ventral aedeagal process in hypopygium of ♂ distinctly broader than in typical form. The ♀-type of *personata* from Tulbagh which Bezzi considered to be the same species as the ♂ of *personata* also belongs to this Karoo-form of *offuscata*. A ♂-specimen of the typical form and a ♂ of the paler Namaqualand-form were labelled as '*Exoprosopa melania*' by Bigot—a specific name which, as Bezzi states, has never been published.

Exoprosopa personata Bezz.

(Bezzi, p. 143, *Ann. S. Afr. Mus.*, xviii, 1921 (only the specimen from Jakkalswater (Lightfoot, Oct. 1911) in Bushmanland); Bezzi, pp. 235 and 237, *The Bombyliidae of the Ethiopian Region*, 1924.)

In the description of this species Bezzi confused no less than three entirely different species. The so-called 'Type ♂ from Bushmanland, Jackals Water' collected by Lightfoot in October 1911 is not a ♂ but a ♀ and is the *personata* s. str. and the specimen of 'the same sex' from the same locality but not labelled as 'type' by Bezzi is a ♂ which belongs to a new species described further on. The type-♀ from Tulbagh (Lightfoot, Nov. 1910) without any doubt belongs to the preceding species *offuscata* Bezzi. In addition to this ♀ (labelled as type by Bezzi) there is in the South African Museum another specimen (♂) from 'Een Riet' in Bushmanland which Bezzi has not seen, but which also belongs to this species. This ♂ and ♀ are characterized as follows:

Body mainly black; entire frons and face, excepting only an oblique yellowish streak under each antenna and the yellow lower sides of face, black; postalar calli and only hind border of scutellum reddish; narrowish hind margins of tergites and in ♂ sides of 2 and 3 obscurely reddish; legs yellowish brown to brown. *Vestiture* with the hair on head in front, the notopleural and prealar bristles, some intermixed hairs in mesopleural tuft, coxal bristles, fine hairs on thorax above, postalar and scutellar bristles, hairs across hind margin of tergite 1, fine hairs on sides of abdomen and those on posterior half of venter black; collar above and most of the hairs on pleurae straw-coloured whitish, more whitish on prosternum, in metapleural tuft and base of venter, with some yellowish or reddish yellow bristles in mesopleural tuft; scaling on head in front gleaming silvery, that on thorax above greyish whitish and brownish; streak of longish hair-like scales on each side of thorax whitish; scaling at base of scutellum dark; that on abdomen above composed of snow-whitish and dark ones, the white ones arranged in bands across the tergites, densely across base of 2 and dense on sides of the others, but also to a certain extent across their bases and hind margins, especially posteriorly, the dark ones present across hinder part of tergite 2, middle of 3 and more or less across basal parts of 4-6; scaling on venter mainly white; that on legs gleaming whitish towards bases of femora, but more brownish or yellowish to black towards their apices and on upper surfaces. *Wings* infuscated brownish to dark brown, with clearer, more hyaline areas in apical cells, in middle of discoidal cell and middle parts of posterior cells, the infuscation along apical and posterior veins, however, broad and extensive, giving a subreticulate appearance; first posterior cell broadly open apically. *Head* with the third antennal joint elongate-conical, its style relatively short, only about or nearly half as long as joint 2. *Legs* with the spinules on front femora and spicules on front tibiae fine, but



TEXT-FIG. 223. Side view of hypopygium of ♂ *Exoprosopa personata* Bezzi.

well developed; middle femora with two rows of spines below; hind ones with a complete row on anterior lower aspect and fewer and finer ones on inner aspect. *Hypopygium* of ♂ (text-fig. 223) with the two dorsal processes at base of aedeagus longer than in *offuscata*, scoop-like; basal strut rather poorly developed; lateral struts very feeble, almost vestigial.

In the South African Museum.

Length of body: about 8–8½ mm.

Length of wing: about 8–9 mm.

Locality: Bushmanland.

Differs from the smaller form of *offuscata* in the shorter style, entire black frons and face, more extensively black scutellum, more extensive clearer areas in apical cells in wings, more numerous dark hairs in mesopleural tuft and no yellowish scales on abdomen above. In view of the fact that Bezzi confused this species with two other species, the specific identity of the specimens from Southern Rhodesia and Nyasaland which he also referred to *personata* (loc. cit., 1924) comes in question.

Exoprosopa fimbriatella Bezz.

(Bezzi, p. 140, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 235–236, *The Bombyliidae of the Ethiopian Region*, 1924.)

The sex of the type-specimen on which Bezzi based his description of this species has been wrongly determined by him. It is a ♂ and not a ♀.

The species is characterized by its entirely black frons, black interantennal space and black discal part of face; its yellowish red scutellum; the broadish yellowish red infusions on sides of tergites 2 and 3; yellowish red hind margins of tergites and even broader reddish hind margins of sternites; its sienna-brownish pleurae and yellowish brown legs; the predominantly black hair on pleurae, among which only some hairs or a tuft in upper part of mesopleural tuft and the propleural tuft gleam yellowish to golden and front part of meta-pleural tuft is straw-coloured to a variable extent; the yellowish collar; the predominantly dark scaling on body above, of which the streaks on sides of thorax are greyish, the transverse band of white scaling across base of tergite 2 is narrowish and the white scales on sides of 3 in form of a small patch, and the scaling across hind margins posteriorly gleaming yellowish; the darker more yellowish or dull yellowish scales on venter and legs. *Wings* uniformly chocolate-brownish, the darker borders to apical and posterior veins and the spots or clouds on cross veins and bifurcations, as well as the clearer areas in cells, not conspicuously evident; first posterior cell widely open. Style of antennal joint 3 very small, vestigial. *Hypopygium* of ♂ resembles that of *personata* (cf. text-fig. 223) but the lateral struts, though short, more developed; basal strut narrow.

In the South African and Transvaal Museums.

Length of body: about $7\frac{1}{2}$ –9 mm.

Length of wing: about $8\frac{1}{2}$ – $9\frac{1}{2}$ mm.

Locality: Transvaal.

Exoprosopa fimbriatella var. *furvalis* n.

This appears to be a distinct variety which differs from the typical form in having the style of antennal joint 3 slightly longer, quite half length of antennal joint 2; a tendency for only posterior half or part of scutellum to be reddish; a tendency for the wings to be less uniformly infuscated and for the darker infusions along the veins and clouds or spots on cross veins to be more distinct, and a distinct spot also present at base of submarginal cross vein; in having entirely black hairs on pleurae and venter; darker scaling on venter and more extensive dark scaling on legs.

From 7 ♂♂ (type in the Transvaal Museum).

Length of body: about 7–10 mm.

Length of wing: about 7–11 mm.

Locality: Transvaal: Retief (9 Sept. 1904) (type); four specimens without locality labels, but presumably from Pretoria. N. Cape Province: Vryburg (H. E. I., 4 Sept. 1920); Prieska (Zumpt, Oct. 1951).

Exoprosopa recurrens-section

Exoprosopa recurrens Lw.

(Loew, p. 241 and tab. ii, fig. 38, *Dipt. Faun. Südafr.*, i, 1860.)

(Syn. = *polyspila* Bezzi, p. 238 and fig. 21, *The Bombyliidae of the Ethiopian Region*, 1924.)

This species of which the *polyspila* of Bezzi is without doubt a synonym and of which Bezzi gives no record in his monograph, is a fairly common and a wide-spread species in Southern Africa. It is subject to much variation as far as the wing-pattern and the extent of the infuscations and spots in the apical and hinder parts of the wings are concerned. It is characterized as follows:

Body mainly black; frons, interantennal space and discal part of face black; sides of face distinctly and extensively reddish; postalar calli, greater part of scutellum, fairly broad hind margins of tergites, sides of tergites 2 and 3 (sometimes fairly broadly) and broadish hind margins of sternites, or in some ♂♂ the entire venter as well as sutural parts of pleurae, to a variable extent yellowish red or reddish; legs also yellowish. Vestiture with the hairs on head in front black, though sometimes with some yellowish ones on each side below antennae, the scaling on head in front yellowish to whitish; collar yellowish above, more

whitish below; hairs on pleurae straw-coloured yellowish to yellowish, usually with a variable number of black ones in mesopleural tuft, on mesopleuron and sometimes in metapleural tuft posteriorly; fine hairs on thorax above, notopleural, prealar, postalar and scutellar bristles, hairs across tergite 1 and on its sides apically and on sides of abdomen from apical part of tergite 2 to apex black; some coxal bristles also black; hair on venter pale in basal half and dark posteriorly, sometimes entirely pale; scaling on thorax above in streaks of yellowish and dark ones, the streak on sides whitish; scaling on scutellum yellowish whitish to white, a discal patch basally or across entire base blackish; scaling on abdomen above composed mostly of whitish, ochreous yellowish ones and also some dark ones, the whitish ones arranged as a basal band across tergite 2, to a lesser extent across middle of 3 (denser on sides) and again more distinctly across hind margins of the rest and as a series of discal segmental spots; ochreous scales on abdomen present across basal and apical margins of tergite 3 and apical margins of 4-7, the black ones more or less across bases on each side submedially of 4-7 and sparsely across hind margins of 1-3; scaling below mostly whitish or white, fairly dense on pleurae; that on legs also gleaming whitish, but dark on femora above and sometimes on hind tibiae. *Wings* as figured by Loew (loc. cit.) and Bezzi (for *polyspila*, loc. cit.), with a fairly characteristic brownish to dark blackish brown pattern of infuscations and spots, with a constant, large spot or spot-like extension near end of anal and axillary cells and with small spots or spot-like infuscations along or near ends of all the veins between posterior cells, a broadish hook-like infusion or extension from anterior infuscation along apical vein of discoidal cell and spots or infusions along apical veins which may sometimes be confluent (form *polyspila* Bezz.);



TEXT-FIG. 224. Side view of hypopygium of ♂ *Exoprosopa recurrens* Lw.

marginal cell in typical form usually with the longish clear apical area divided into two; first posterior cell rarely tending to be closed apically; appendix from discoidal cell into third posterior cell sometimes wanting. *Antennae* with style of joint 3 quite as long as joint 2. *Legs* with distinct spinules on front femora and with spicules well developed on front tibiae; middle and hind femora with more or less two complete rows of spines. *Hypopygium* of ♂ (text-fig. 224) with the beaked apical joints rather small; dorsal processes at base of aedeagus on aedeagal apparatus slightly longer than aedeagus.

In the British, Durban and South African Museums and in Commonwealth Institute.

Length of body: about $6\frac{1}{2}$ -10 mm.

Length of wing: about $6\frac{1}{2}$ -10 mm.

Locality: Koup Karoo, Little Karoo, Great Karoo and Eastern and North-eastern Karoo.

This species seems to be more or less restricted to the drier and more inland Karoo parts of South Africa, being replaced in Namaqualand, along the West Coast and the Southern Cape by *angulata* Lw., a very closely related species which, however, also extends into the Little Karoo and parts of the Great Karoo.

Exoprosopa angulata Lw.

(Loew, p. 242 and tab. ii, fig. 37, *Dipt. Faun. Südaf.*, i, 1860; Bezzi, p. 144, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 235 and 239, *The Bombyliidae of the Ethiopian Region*, 1924.)

This species may almost be considered as representing only a large form of *recurrens* from which it, however, differs in being on the whole larger; in having the front part or half of frons, interantennal space and basal part or half, or sometimes even more, of face yellowish, the black on face sometimes confined to apex; hind margins of tergites, sides of 1-3 (or 4) and venter distinctly more broadly and more extensively reddish and usually paler legs. *Vestiture* with a prealar tuft of dense hair-like scales just below base of wings which is large, white and conspicuous, not small and usually yellowish as in *recurrens*; scaling discally across middle of tergites 2 and 3 with more black ones and with pale scales on extreme sides of 4-6 or 5 and 6 ochreous, not white; collar deeper yellowish or orange yellowish; mesopleural tuft usually with some reddish golden bristles and sometimes with more golden hairs below each antenna or even on sides of face or even in apical facial tuft; scaling on pleurae like that of *recurrens* is relatively dense. *Wings* with only a small spot or no infuscation along or near end of vein between apical two cells and, if with a conspicuous spot, anterior part of frons and base of face reddish, and usually without a constant spot near end of vein between first and second posterior cells; third posterior cell usually as long as fourth posterior cell, scarcely shorter. *Hypopygium* differs from that of *recurrens* in having the beaked apical joints larger, their outer angle more angularly prominent and their beaks relatively longer; basal strut distinctly narrower and thicker.

In the British, Transvaal and South African Museums and in the Commonwealth Institute.

Length of body: about 10-13 mm.

Length of wing: about 10-13 mm.

Locality: Southern Cape, Namaqualand and Little Karoo.

The species is also variable, in some forms the clear parts in wings are more glassy hyaline, and an infuscation or spot is present to a variable extent at apex of vein between two apical cells.

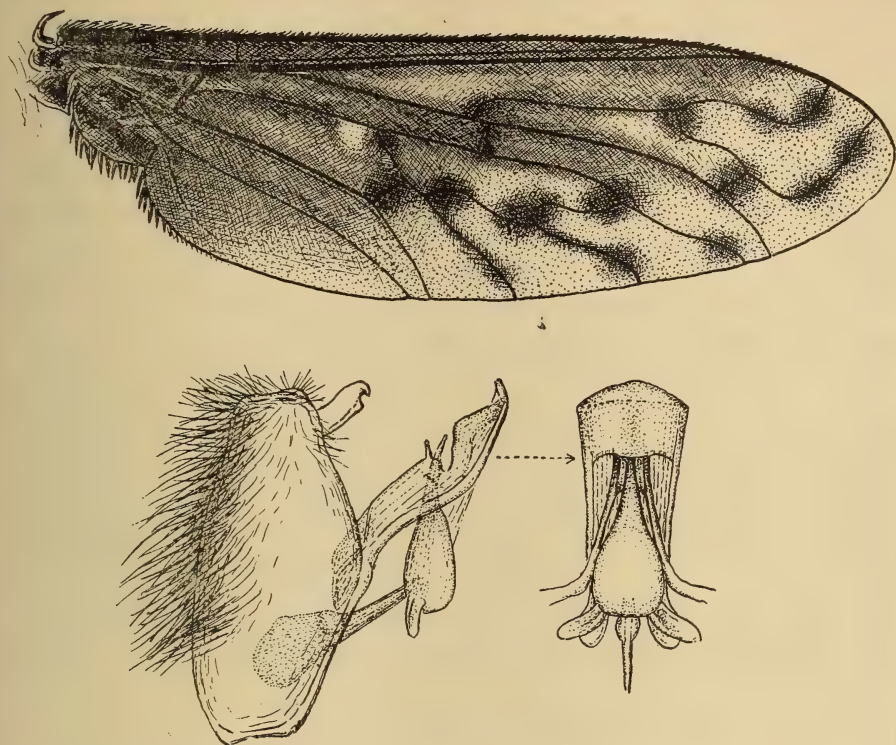
Exoprosopa polysticta n. sp.

(Syn. = *personata* Bezzi, in part (♂), p. 143, *Ann. S. Afr. Mus.*, xviii, 1921.)

Body mainly black; head in front mainly black, only extreme sides of face below and an oblique streak below antennae yellowish to a variable extent;

antennal joint 1 usually yellowish and 2 below also; hinder part, hind half or only extreme hind margin of scutellum reddish, sometimes entirely black; abdomen entirely black, without any reddish on sides of tergites 2 and 3, but with narrowish yellowish or reddish hind margins to sternites; legs yellowish to brownish or very dark brown, the front and middle tibiae usually paler. *Vestiture* with the hairs on head in front entirely black, the fine ones across hind margins of occiput whitish or yellowish and the broadish scales on head in front whitish, greyish white to dull or greyish yellowish; anterior part of collar above and below, numerous hairs in mesopleural tuft, anterior part of metapleural tuft, tuft on sides basally of tergite 1, some hairs basally on sides of 2 and some hairs at base of venter straw-coloured yellowish to yellowish, usually paler, more whitish, on pleurae below and sides of tergite 1; hairs across hinder part of collar, fine ones on thorax above, notopleural and prealar bristles, numerous intermixed bristly ones in mesopleural tuft, some anteriorly in propleural tuft, some or numerous ones in hinder part of metapleural tuft, coxal bristles, postalar and scutellar bristles and rest of hair on sides of abdomen and on venter black; plumula white; scaling on thorax above whitish, greyish white to yellowish, more or less separated by streaks of dark or brown ones; streak on sides of thorax greyish white; scutellum with much dark or black scaling basally and intermixed with pale ones posteriorly; scaling on abdomen above composed of white or whitish ones and extensive dark or black ones and usually with some dull yellowish white, greyish yellowish to yellowish ones; those densely across hind margin of tergite 1 and sparsely across the other tergites mainly black; the white ones arranged transversely as a conspicuous band across base of 2, densely across sides of 3, but more narrowly across its base and as sparser bands across hinder parts of rest of tergites, though denser on sides posteriorly and sometimes as a row of central discal spots; the dark or black ones on abdomen occupying rest of tergal surfaces, though mainly across bases of tergites and across hind margin of last one; scaling on venter and body below mainly white or whitish; that on legs gleaming mainly whitish or yellowish, but with dark or black ones on upper surfaces of femora and on tibiae to a variable extent. *Wings* with the base and anterior half very dark blackish brown and the apical and hinder parts clearer or more greyish hyaline, but with extensive infuscations, spots and clouds along veins, on cross veins and bifurcations as shown in text-fig. 225 (above), the infuscation in anal and axillary cells usually becoming fainter or clearer beyond middle, but in some forms with an obscure, spot-like cloudiness apically, with the spots and clouds variable in extent and distinctness; first posterior cell, though narrowed apically, not tending to be acuminate or closed (or only occasionally so), usually widely open; stump from discoidal into third posterior cell sometimes very short or even absent. *Head* with the face rather sharply conical; third antennal joint elongate-conical, rather stoutish, its style minute, scarcely separately visible, distinctly shorter than even half length of antennal joint 2, the apex of 3 often appearing as if truncated; proboscis not or scarcely projecting beyond buccal apex. *Legs* with

some spinules on front femora, but with the spicules on front tibiae very feebly or poorly developed; middle and hind femora with two rows of spines below, the inner ones on hind ones shorter. *Hypopygium* of ♂ (text-fig. 225 (below)).



TEXT-FIG. 225. Above: Right wing of ♀ *Exoprosopa polysticta* n. sp. Below: Side view of hypopygium and ventral view of detached aedeagal apparatus of ♂ of the same species.

From 154 ♂♂ and 99 ♀♀ (types and paratypes in the South African Museum and paratypes in the British and Transvaal Museums and in the Commonwealth Institute).

Length of body: about $5\frac{1}{2}$ –11 mm.

Length of wing: about $5\frac{1}{2}$ –10 $\frac{1}{2}$ mm.

Locality: Numerous and various localities in the Koup Karoo, Great Karoo, North-eastern Karoo, Nieuveland Karoo, Knersvlakte, Namaqualand, Bushmanland, Griqualand West and Great Namaqualand in South-West Africa. The types come from 'Buffels River near Merweville (Mus. Exp., Oct. 1940)' in the Koup Karoo.

This widely distributed and relatively common species is easily recognized by its black frons and face, reddish-tipped or almost black scutellum, entirely black abdomen above and darkly infuscated, spotted, marbled and clouded

wings. From *recurrens* Lw. it may at once be distinguished by the predominantly black scutellum, more extensively black face, black abdomen without red hind margins, the absence of a conspicuous spot near apex of anal cell, more extensive infuscation along apical and posterior veins and minute style. It is very variable in the extent of the infuscations and spots in the wings and also the extent of the reddish on hind part of scutellum. Apart from the wing-pattern of the typical form as shown in text-fig. 225, a certain form has a tendency for the apical halves of anal and axillary cells to be more contrastingly clearer and also for the apical and hinder clearer parts to have less extensive infuscations and smaller spots and clouds. Another form has an entirely or almost entirely black scutellum and even more extensive infuscations in apical and hinder parts of wings, a cloudiness or infusion being even present along hind margin of wings, in this respect resembling *personata* from which it may, however, be distinguished by the shorter style, the entirely black abdomen, more numerous black intermixed hairs in mesopleural tuft and more spotted appearance of the wings. Still another form has a faint indication of an obscure cloudiness or spot near end of anal and axillary cells and more rounded or discontinuous spots near ends of posterior veins, in this respect resembling the wing-pattern of *recurrens* and *angulata*. A single ♂-specimen from Gamkaspoort differs from most of the other forms in having no distinct spots or infusions at ends of posterior veins.

It is remarkable that this widely distributed and common species has not been described before. A ♂-specimen from Jackal's Water (Jakkalswater) in Bushmanland was wrongly referred to *personata* Bezz. by Bezzi himself (loc. cit.) from which species it may, however, at once be distinguished by its entirely black abdomen, relatively shorter style, more spotted wings, etc.

Exoprosopa hamula n. sp.

This small species like the preceding one is a predominantly black form, with the head in front entirely black, only sides of face below and supragenal parts yellowish; entire scutellum black or only extreme hind border reddish, rarely mainly red; abdomen entirely black above, without any or distinctly less extensive red on sides or sometimes with very narrow, obscure and faint reddish hind margins, the hind margins of sternites, however, reddish; legs yellowish brownish to brownish, appearing very dark, due to dark or black scaling. *Vestiture* much like that described for *polysticta*, but with even more intermixed dark elements on mesopleuron and even some anteriorly in propleural tuft and on prosternal part; scaling on head in front gleaming greyish white, that on thorax above also greyish, but with much black or dark ones and the streak on sides also greyish white; scaling on abdomen apparently mostly dark or gleaming graphite-like, the white ones arranged as a dense band across base of tergite 2, densely on sides and narrowly across base of 3 and more or less across hinder parts, especially extreme sides, of rest of tergites, though these latter pale scales appear dark in certain lights; scaling below and on venter

white or gleaming whitish; that on legs gleaming whitish in certain lights and dark in others, though much black scaling is also present, especially on anterior upper parts. *Wings* with a characteristic blackish brown pattern as shown in pl. ii, fig. 1 of which the large spot-like extension across and near end of anal and axillary cells and the broadish extension of anterior infuscation along apical vein of discoidal cell and down along the two veins separating third posterior cell from second and fourth posterior cells respectively are fairly constant and characteristic; first posterior cell broadly open. *Antennae* with joint 3 rather stoutish, elongate-conical, its style separately visible, and though small, quite half length of joint 2. *Legs* with spinules on front femora; spicules on front tibiae slightly more developed than in preceding species; middle and hind femora with two rows of spines below, the inner ones on hind ones smaller, feebler. *Hypopygium* of ♂ resembles that of *polysticta* (cf. text-fig. 225), but the basal parts have slightly shorter hairs and basal strut is relatively narrower.

From 10 ♂♂ and 12 ♀♀ (types and paratypes in the South African Museum).

Length of body: about $5\frac{1}{2}$ –9 mm.

Length of wing: about $5\frac{1}{2}$ –9 mm.

Locality: Tankwa Karoo: Waterval in the Tankwa River (Mus. Exp., Nov. 1952) (types). Moordenaars Karoo: Lammerfontein (Mus. Exp., Oct. 1952). Koup Karoo: Buffels River near Merweville (Mus. Exp., Oct. 1940); Klaarstroom–Prince Albert (Mus. Exp., Oct. 1952). Laingsburg Karoo: Rooineke Pass–Seven Weeks Poort (Mus. Exp., Oct. 1952).

The characteristic wing-pattern distinguishes this species from most other species in this group. From *recurrens* Lw. and *angulata* Lw. which have a similar type of wing-pattern it may at once be distinguished by the extensive black on the face, entirely or almost entirely black scutellum, almost entirely black abdomen above, shorter style, and more extensive black hairs in mesopleural tuft and anteriorly in propleural tuft.

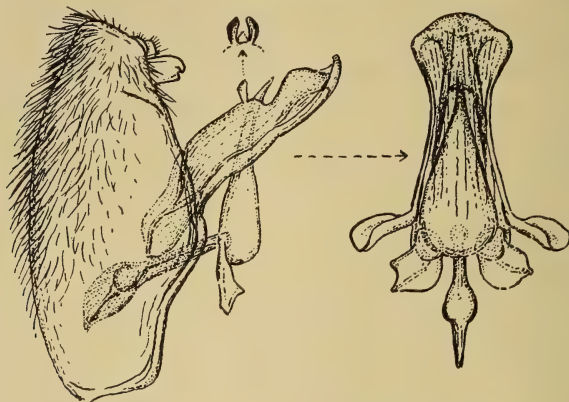
Exoprosopa spoliata Bezz.

(Bezzi, pp. 235 and 239 and fig. 22, *The Bombyliidae of the Ethiopian Region*, 1924.)

This species which Bezzi described from a series of ♀♀ is represented in the collections before me by both ♂♂ and ♀♀. It is characterized as follows:

Body with much yellowish or reddish; front half of frons and base or basal part of face, sides of face, entire or greater part of scutellum, hind margins of tergites broadly, sides of tergites 2 and 3 or 2–4, or sometimes entire sides of abdomen broadly and extensively in some ♂♂, and the hind margins of sternites very broadly or even entire venter yellowish red or reddish; pleurae to a variable extent and the legs also yellowish. *Vestiture* with the hairs on sides of face intermixed with golden ones, the scaling on front half of frons and sides of face whitish or greyish whitish and hinder part of frons with two patches of

whitish scales among the rather sparse pale ones; collar above, hairs on pleurae, venter and tergite 1 predominantly yellowish, that in collar below and on sides of tergite 1 more whitish and with only a few dark hairs intermixed on mesopleuron; scaling on body below snow-whitish, the patches on sternopleuron, coxae and base of venter on each side very conspicuous; scaling on thorax above in streaks of yellowish whitish and dark ones; scaling on abdomen above with complete bands of white ones across base of tergite 2 and hinder middle



TEXT-FIG. 226. Side view of hypopygium and ventral view of detached aedeagal apparatus of ♂ *Exoprosopa spoliata* Bezz.

parts of 4, 6 and 7, the latter tergites bordered posteriorly with yellowish scales, with white patches on sides of tergite 3 and whitish spots along middle on 3, 4, 5 and 7, with black scales basally and laterally across 3-7, across middle of 2 and hind margin on sides of 1 and with yellowish or ochreous scales more or less across hind margins of tergites. *Wings* dull pale yellowish brownish, the apical part and hinder half more greyish hyaline; spots on cross veins darker, but without any spot near apex of anal cell and also without any spots along posterior veins or with only a cloud or spot near ends on veins of second posterior cell and near end of second vein; clearer areas in more than apical half of discoidal cell and apically in marginal and enclosed submarginal cells showing up conspicuously. *Head* comparatively broad in front; interocular space on vertex also relatively broad, broader than length of antennal joint 3 (minus style); style of antennal joint 3 short, not or scarcely longer than joint 2. *Legs* with strongly developed spicules on front tibiae and numerous spines in double rows on middle and hind femora below. *Hypopygium* of ♂ (text-fig. 226) with shortish hairs on basal parts; beaked apical joints smallish; dorsal processes on aedeagal apparatus at base of aedeagus in form of two flattened, blade-like structures; lateral struts broadish, sometimes leaf-shaped, broad and flattened, the right-hand one tending to be slightly differently shaped from one on left.

In the Transvaal and South African Museums.

Length of body: about 11–14 mm.

Length of wing: about 11–14 mm.

Locality: North-eastern Cape, Orange Free State, Transvaal and according to Bezzi also Natal.

Easily recognized by the dull yellowish brownish and greyish hyaline wings, absence of spots near ends of anal cell and most of the posterior veins and broadish face and interocular space. From *angulata* Lw., with which it may be confused, it may at once be distinguished by the more yellowish infuscation in the wings, the absence of a spot near end of anal cell and fewer, feebler or even entire lack of infuscations near ends of other posterior veins, more greyish non-infuscated parts, relatively broader front part of head, more spicules on front tibiae, etc.

Exoprosopa gonioneura n. sp.

(Syn. = *spoliata* Bezzi, in part (specimen from Willowmore), p. 85,
Broteria (Ser. Zool.), xx, 1922.)

In 1922 (loc. cit.) Bezzi determined some specimens from Willowmore, collected by the late Dr. Brauns, and also some specimens in the Budapest Museum and in his own collection as *spoliata*, a species which at that time he had not as yet described, but which he fully described two years afterwards in his revision in 1924, basing his description not on Brauns' or the Budapest Museum's material, but on eight ♀♀ from Natal and the Transvaal in the British Museum. As he designated a specimen from Natal as the type and as his description and figure of the wing of these ♀♀ agree in every respect with the specimens which I have referred to *spoliata* s. str. above, the ♂-specimen from Willowmore which he labelled as *spoliata* in 1922, which is now before me and which belongs to an entirely different species, can no longer be retained in *spoliata*. Whether the other specimens, those in the Budapest Museum and in his own collections, are specifically identical with this ♂-specimen is a question which can only be answered by an examination of that material.

As this ♂-specimen from Willowmore is specifically distinct from *spoliata*, it and a series of other ♂♂ and ♀♀ of the same species in the South African Museum are here referred to a new species of which the *spoliata* Bezz. of 1922 (restricted to the ♂ from Willowmore) is a synonym.

This latter specimen and the series of ♂♂ and ♀♀ in the collections before me agree and differ from *spoliata* as described by Bezzi and defined above in the following respects: With *spoliata* this species agrees in the extensive reddish on front part of frons, base and sides of face, entirely red scutellum, broad reddish hind margins of tergites and sternites, extensive red on sides of abdomen, the yellowish pleurae and legs, and the presence of more or less similar cross bands and central spots of white scaling on abdomen above and the snow-white scaling on body below. It, however, differs in the following respects: *Vestiture*

with entirely yellowish or yellow hair on pleurae, sides of tergite 1 and venter, or with much fewer dark hairs intermixed on mesopleuron; bands of white scaling across tergites 3-6 with a greater tendency to be represented only on sides and as white discal spots, being more broadly interrupted by black scaling on each side and with the yellowish scales across hind margins of tergites less ochreous, more greyish yellowish or even whitish. *Wings* with the infuscated parts darker, more brownish, the wings more reticulate in appearance, with a distinct, though often small, more constant spot or infuscation near end of vein between first and second posterior cells and usually with more extensive, more constant, less spot-like infuscations along apical vein between two apical cells, along lower veins of discoidal cell and along posterior vein between second and third posterior cells; first posterior cell invariably more acuminate, usually more acute, rarely not closed apically; discoidal cell distinctly longer, its apical part distinctly more produced and elongated and this part tending to be more truncate apically. *Antennae* with the style of joint 3 relatively longer, often longer or much longer than joint 2. *Legs* with the spicules on front tibiae less developed and less conspicuous. *Hypopygium* of ♂ with broader, more hairy basal parts; lateral struts stouter, relatively blunter, shorter, less leaf-shaped; basal strut stouter.

From 16 ♂♂ and 11 ♀♀ (types and paratypes in the South African Museum, paratypes in the Transvaal Museum and Commonwealth Institute).

Length of body: about 7-16½ mm. (usually 11½-16½ mm.).

Length of wing: about 7-16 mm. (usually 11½-16 mm.).

Locality: Great Karoo: Murraysburg Dist. (Mus. Exp., Nov. 1935) (types); Richmond Dist. (Mus. Exp., Nov. 1939); Aberdeen (Mus. Exp., Nov. 1935); Graaff-Reinet (Ogilvie, 24-7 Oct. 1931); Cradock (Mus. Exp., Oct. 1935); Willowmore (Brauns, 1 Nov. 1919); Colesberg (Mus. Exp., Nov. 1939); Venterstad (Mus. Exp., Oct. 1935). Koup Karoo: Letjiesbos (Mus. Exp., Nov. 1935); Dikbome near Merweville in the Laingsburg Div. (Mus. Exp., Oct. 1952). Moordenaars Karoo: Lammerfontein (Mus. Exp., Oct. 1952). North-west Cape: Putsonderwater (Mus. Exp., Oct. 1939). Griqualand West: Niekerkshoop (Mus. Exp., Oct. 1939). South-West Africa: Great Karas Mts. in Great Namaqualand (Mus. Exp., Nov. 1936).

Slightly variable, the scutellum, sides of tergites 2 and 3 and hind margins of tergites in some specimens from the Koup being less extensively reddish.

Exoprosopa obscuripennis n. sp.

This species also superficially resembles *spoliata* and to a certain extent also *gonioneura* from both of which it differs in the following respects:

Entire frons and face above or at least greater part of face above and frons above, excluding only yellowish genal part below antennae and sides below and occasionally interantennal space, black; scutellum with a much broader black base; reddish hind margins of tergites and red on sides of tergites 2 and

3 or sides of abdomen and the reddish on venter distinctly narrower and less extensive. *Vestiture* usually with more numerous dark or black hairs intermixed on mesopleuron, on notopleural part and posteriorly on sides of tergite 1; venter with dark hairs in posterior half and the black hairs on sides of abdomen relatively longer and denser; white scaling below less conspicuous on pleurae and sternopleuron, but apparently more scattered and more extensive. *Wings* even duller than in *spoliata*, the less infuscated parts more greyish, with more distinct, more constant and slightly more extensive infuscations or clouds along or near ends of all or most of the posterior veins, with the clearer areas apically in enclosed submarginal cell and apical part of discoidal cell less conspicuous; discoidal cell distinctly longer, narrower, its apical part distinctly more produced, the S-shaped base of second posterior cell thus longer; praediscoidal spot slightly smaller. *Head* with the frons and face relatively much narrower, the interocular space on vertex narrower, usually a little narrower than, or not much broader than, length of antennal joint 3 (minus style); style tending to be even a little shorter, scarcely more than half length of joint 2. *Legs* with the spicules on front tibiae distinctly less strongly developed. *Hypopygium* of ♂ resembles that of *spoliata*, (cf. text-fig. 226) but differs in having the lateral struts relatively longer, narrower and also with a tendency for the two to be slightly differently shaped, the right-hand one more pointed apically and left one more truncated or bifid; basal strut distinctly narrower.

From 18 ♂♂ and 9 ♀♀ (types and paratypes in the South African Museum, paratypes in the Transvaal Museum and in Commonwealth Institute).

Length of body: about 8–11½ mm.

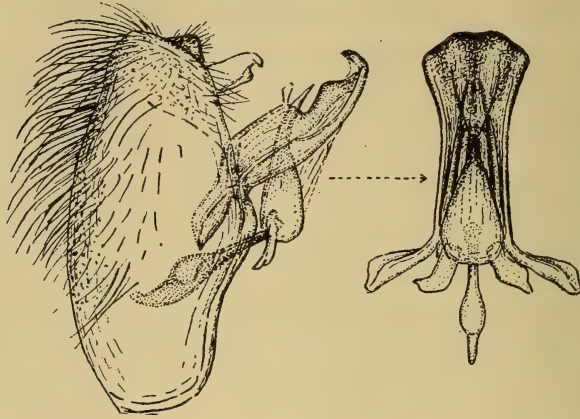
Length of wing: about 8–11½ mm.

Locality: Great Karoo: Murraysburg Dist. (Mus. Exp., Nov. 1935) (types); Richmond Dist. (Mus. Exp., Nov. 1939); Aberdeen (Mus. Exp., Nov. 1935); Willowmore (Brauns, 8 Nov. 1920). Koup Karoo: Letjiesbos (Mus. Exp., Oct. 1940); Teekloof (Mus. Exp., Nov. 1935). Nieuveld Escarpment in Beaufort West Dist. (Mus. Exp., Nov. 1935). Nieuveld Karoo: Calvinia (Mackie, 11–16 Nov. 1931).

Exoprosopa eremochara n. sp.

Resembles *obscuripennis* very closely, having an almost identical wing-pattern, but differs in having the hind margin of tergites not or only very indistinctly, or much more narrowly, reddish; sides of tergites 2 and 3 not or only obscurely reddish and then on extreme sides only; hind margins of sternites also more narrowly reddish; interantennal space and sides of face below antennae without or with much fewer yellowish hairs and with more numerous black ones intermixed on mesopleurae where there are also fewer reddish bristles; legs with more, or even conspicuous, dark scaling on outer surfaces of middle and hind femora and inner surfaces of front ones; wings with the infuscated parts and spots more chocolate-brownish and clearer parts more hyaline, less greyish, the

infuscations along posterior veins, and usually also on vein between two apical cells, more extensive and with a faint cloudiness or spot at end of anal cell. *Hypopygium* of ♂ (text-fig. 227) with the outer angle of basal part of beaked apical joints prominently projecting, more conspicuous and more sharply angular than in *obscuripennis*; lateral struts shorter, broader.



TEXT-FIG. 227. Side view of hypopygium and ventral view of detached aedeagal apparatus of ♂ *Exoprosopa eremochara* n. sp.

From 4 ♂♂ and 2 ♀♀ (types and paratypes in the South African Museum).

Length of body: about 10–11 mm.

Length of wing: about 10–11 mm.

Locality: Cape Province: Pofadder in Bushmanland (Mus. Exp., Oct. 1939) (types); between Springbok and Pella in Bushmanland (Mus. Exp., Oct. 1939). Koup Karoo: Koup Siding (Mus. Exp., Oct. 1952). Tankwa Karoo: Renoster River (Mus. Exp., Nov. 1952).

Apparently slightly variable, for the ♂ from the Tankwa Karoo, the ♂ from Pella and the ♀ from the Koup differ from the types in having no spot or only a smaller one at apex of anal and axillary cells, and at end of vein between submarginal cells and in having more black hairs in mesopleural tuft.

From a form of *polysticta* which it also resembles superficially and in the pattern of the wings, it may be distinguished by the reddish hind margins of the tergites and sternites, more broadly reddish scutellum, paler legs, predominantly pale hairs on venter and more pale scaling on abdomen above.

Exoprosopa zonata-section

Exoprosopa zonata Hesse

Hesse, p. 176 and fig. 2, *Ann. Transv. Mus.*, xvii, 1936.)

Of this species which I described from only 2 ♀♀ there is now in the collections before me a series of 9 ♂♂ and 3 ♀♀ from other localities. It is chiefly charac-

terized in having a predominantly black body, a black frons and greater part of face, a scutellum which is reddish only in hinder half or part, narrow reddish hind margins to tergites and sternites, absence of extensive red on sides of tergites 2 and 3, and dark brownish to blackish brown or even blackish legs. *Vestiture* with entirely dark hairs on head in front and greyish white scaling; collar and hairs on pleurae, tergite 1, base of abdomen on each side and those on at least basal half of venter straw-coloured yellowish; mesopleuron with a variable number of dark or black hairs intermixed with the pale ones; hairs on thorax above, notopleural, prealar, postalar and scutellar bristles and hairs on sides of abdomen from apex of tergite 2 and sometimes hinder part of venter



TEXT-FIG. 228. Right wing of ♀ *Exoprosopa zonata* Hesse (after Hesse, fig. 2, p. 177, *Ann. Transv. Mus.*, xvii, 1936).

black; scaling on thorax above dull or greyish yellowish, with streaks of darker ones; white scaling on abdomen above in form of a conspicuous and broadish band across bases of tergites 2 and 3 and less conspicuously or more narrowly across hinder parts of other tergites; rest of scaling on abdomen in form of dull or greyish yellowish ones across extreme hind margins of tergites and black ones across middle of 2 and basally on each side of 4-7; scaling on venter whitish across hind margins, but greyish or even dark on rest of surfaces; that on legs mostly dark, but gleaming greyish or even greyish whitish in certain lights. *Wings* (text-fig. 228) brownish to dark brownish in costal half, the apical part and hinder half hyaline, the infuscated part well marked off from hyaline parts, with the dark spots on cross veins and bifurcations, especially in hyaline part, showing up conspicuously, without any spots near ends of posterior veins or cells; end of second vein much recurved. *Antennae* with the style of joint 3 separately visible, quite or nearly as long as joint 2. *Legs* with the spinules on front femora absent or only represented by 1 or 2 apically on sides; spicules on front tibiae very poorly developed, sometimes not or scarcely visible; middle femora with only a few spines or with only the outer row complete; hind ones with only about 5-7 spines in a single row on outer side and 1 or 2 on inner side

basally. *Hypopygium* of ♂ with the outer angles of beaked apical joints not prominently projecting beyond basal parts; lateral struts small; basal strut bat-shaped.

In the Transvaal and South African Museums (original ♀-type in the Transvaal Museum).

Length of body: about 7-9 mm.

Length of wing: about 7-9 mm.

Locality: North-eastern Cape, Orange Free State and Northern Transvaal.

Easily recognized by its dimidiately infuscated wings and entire absence of spots near ends of posterior veins. The ♂♂ from North-eastern Cape and the Orange Free State do not appear to differ in essential features from the typical form from Northern Transvaal.

Exoprosopa hemiphaea n. sp.

This species may almost be considered as representing only a special variety of *zonata*, but it differs from the latter in having a distinctly more minute or shorter style which is distinctly much shorter than antennal joint 2; distinctly more spinules on front femora and more spines on middle and hind ones, those on latter in two complete rows, though those in inner row are small; the spicules on front tibiae distinctly more developed and visible; more reddish on sides of tergites 2 and 3; predominantly or even entirely dark or black hairs on mesopleuron, on prosternal part, posterior part of metapleural tuft and on venter; the white band across base of tergite 3 only represented on sides; the brownish or blackish brown infuscation in wings slightly more extensive, extending much farther down first posterior cell and farther apically in marginal cell, the infuscation also less well marked off from clearer parts, the latter more greyish hyaline than hyaline, with the spots slightly larger and first posterior cell more broadly open apically.

From 4 ♀♀ (type in the Transvaal Museum).

Length of body: about $7\frac{1}{2}$ -8 mm.

Length of wing: about $7\frac{1}{2}$ -8 mm.

Locality: Transvaal: Pretoria (Munro, 10 Oct. 1920) (type); Pietersburg (Munro, 11 Sept. 1915). Two specimens without locality-labels, but probably from Pretoria.

Exoprosopa aridicola n. sp.

Resembling *zonata* in having dimidiately infuscated wings, without any spots along or near ends of posterior veins and cells, and the black abdomen with only obscure or narrowish red hind margins. It, however, differs from *zonata* in having the style of antennal joint 3 minute or vestigial, scarcely separately visible, and apical part of the joint itself appearing truncated; slightly more black hairs intermixed on mesopleuron; the white scaling across base of tergite 3

confined to sides and not tending to extend uninterruptedly across; the scaling on venter more uniformly white or whitish; the infuscated costal half of wings (pl. ii, fig. 2) slightly more extensive, extending down first posterior cell to at least half its length; first posterior cell almost always acute and closed apically; the spots or clouds on cross veins often more conspicuous; the spicules on front tibiae distinctly more developed and more evident; the middle and hind femora with more numerous and more or less double rows of spines. *Hypopygium* of ♂ (text-fig. 229) differs from that of *zonata* in having a much broader basal strut which is more bat-shaped and truncated; lateral struts also slightly broader.

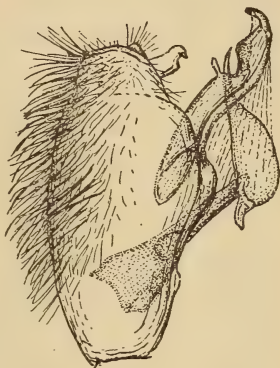
From *hemiphaea* which it also resembles, this species may at once be distinguished by the predominantly straw-coloured hairs on pleurae and body below, fewer dark scaling on body above and below, entirely white-scaled venter, absence of any red on sides of abdomen, closed or very acute first posterior cell and much more hyaline clearer parts of wings.

From 17 ♂♂ and 19 ♀♀ (types and paratypes in the South African Museum).

Length of body: about $5-10\frac{1}{2}$ mm.

Length of wing: about $5-10\frac{1}{2}$ mm.

Locality: Bushmanland: Onseepkans on the Orange River (Mus. Exp., Oct. 1939) (types); Pofadder (Mus. Exp., Oct. 1939). Griqualand West: Kuruman (Mus. Exp., Oct. 1939).



TEXT-FIG. 229. Side view of hypopygium of ♂ *Exoprosopa aridicola* n. sp.

Exoprosopa melanozona n. sp.

Body black; front part or half of frons and base, genal parts and lower sides of face yellowish; postalar calli, apical two-thirds or three-quarters of scutellum, hind margins of tergites and sternites, the latter much more broadly or entirely in ♂, and sides of tergites 2 and 3 (or 4), or in ♂ even entire sides of abdomen, reddish or yellowish red; pleurae yellowish brownish to a variable extent, more so in ♂; legs yellowish brownish, appearing dark due to dark scaling. *Vestiture* with the hairs and bristles predominantly or entirely black on pleurae, notopleural parts and venter, though a few intermixed ones in mesopleural tuft and propleural tuft may sometimes be yellowish or fulvous brownish; hairs across tergite 1 entirely and conspicuously black, only the shortish shorn-off ones on extreme sides basally yellowish or brownish, the black ones on sides of abdomen also dense and conspicuous; collar above and plumula straw-coloured yellowish, the latter more whitish; scaling on head in front greyish yellowish, that on thorax above mostly dark or black, the streak on sides and scales across base of scutellum gleaming greyish yellowish in certain lights; scaling on abdomen

above mostly black or dark, but that in a dense band across base of tergite 2 and in a quadrate spot on each side of 3 conspicuously snow-white and that across hinder parts of posterior tergites also whitish or gleaming whitish in certain lights; scaling below mostly dark or black, gleaming greyish or greyish whitish; that on legs mostly black, gleaming graphite-like. *Wings* blackish brown or dark reddish brown in anterior half, almost imperceptibly grading into the less infuscated parts which are more greyish hyaline and in which the dark spots on cross veins and bifurcations show up distinctly, but without any spots near ends of posterior veins or cells; first posterior cell broadly open apically; squamae dark, dark-fringed. *Antennae* with the style of third joint separately visible, short, only about or nearly as long as joint 2. *Legs* with two rows of spines on middle and hind femora, though those in inner row are small; spinules and spicules on front femora and tibiae feebly developed. *Hypopygium* of ♂ with the two dorsal processes at base of aedeagus fused or contiguous apically, scoop-like; basal strut short, bat-shaped.

From 3 ♂♂ and 3 ♀♀ (one headless) (types in the South African Museum, paratypes in Transvaal and Rhodesian Museums and in Commonwealth Institute).

Length of body: about 8–10 mm.

Length of wing: about 8–10 mm.

Locality: Southern Rhodesia: Bulawayo (Rhodesian Mus., Oct. 1916); Bulawayo (Stevenson, 1 Oct. 1923) (types); Victoria Falls (H.E.I., 20 Aug. 1920).

Easily recognized by the red on its head in front, black hairs on pleurae and across tergite 1, predominantly dark scaling on body above and below and dark reddish brown wings. One ♂-paratype is labelled 'near *Exoprosopa angulata*' and another as an '*Exoprosopa* near *fimbriatella*'. The species, however, does not resemble *angulata* which has spots near ends of posterior veins, predominantly yellowish hairs on pleurae, much yellowish or pale scaling on body above and below. The section to which *fimbriatella* belongs on the other hand has uniformly infuscated wings in which the spots are not conspicuously visible. This species can only be confused with the dimidiata-winged *zonata*-series, more especially *hemiphaea* which has similar infuscated wings, but from which it may at once be distinguished by the extensive red on frons in front and base of face, the black hairs across tergite 1, entirely dark or black scaling on body below, more extensive black scaling above, etc.

Exoprosopa rubicunda n. sp.

(Syn. = *spoliata* Hesse, nec Bezzi, p. 176, *Ann. Transv. Mus.*, xvii, 1936.)

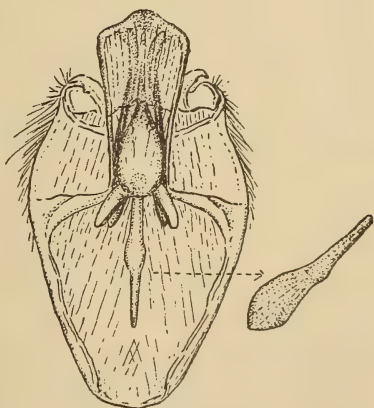
Some specimens of this species from the Northern Transvaal were wrongly determined by me as *spoliata* in 1936. As the species differs from the true *spoliata* and most other species belonging to the *Acrodisca*-group in important respects, it is referred to a new and separate species which is characterized as

follows: *Body* with the front half of frons, greater part of face, excepting only a black discal apical spot of variable extent, antennae, humeral calli, postalar calli, greater part of scutellum, broadish hind margins of tergites, sides of tergites 2-4 broadly, or in ♂ entire sides of abdomen, entire venter, entire pleurae to a large extent and legs reddish or reddish yellow. *Vestiture* with the collar above and hairs on pleurae, tergite 1 and venter yellowish to deep yellowish, becoming paler on pleurae below, but with some dark or blackish hairs intermixed on mesopleuron and sometimes also on prosternum; fine hairs on thorax above, notopleural, prealar, postalar and scutellar bristles, the hairs on front coxae, bristles on other coxae and shortish hairs on sides of abdomen from apex of tergite 2 to hind end black; scaling on head in front and on thorax yellowish, with some streaks of more brownish ones on thorax; streak on sides of thorax whitish; scaling on abdomen above composed of whitish, some yellowish or ochreous yellowish and black ones, the white ones arranged as a dense, conspicuous band across base of tergite 2 and as less dense bands, bordered by yellowish scales anteriorly, across middle of 3 and hinder parts of 4-7, though also dense on sides; the black ones across hind margin of tergite 1, middle of 2 and 3 and on each side across bases of rest; scaling below mostly white and that on legs yellowish, gleaming almost whitish, but with some dark ones on femora. *Wings* reddish brownish or cinnamon-brownish in anterior half, imperceptibly grading or becoming clearer, less infuscated, apically and posteriorly, sometimes almost uniformly infuscated except apically; veins reddish, the spots on cross veins and bifurcations faint, without any spots near ends of posterior veins or cells; vein between second and third posterior cells with a constant tendency to be continued as a stump into discoidal cell; first posterior cell usually open. *Head* with the style of antennal joint 3 very short, about or nearly as long as antennal joint 2; labellar part of proboscis broadish, more rounded apically and finely spinulate. *Legs* with the front ones rather slender; front femora without distinct spinules; front tibiae, excepting on lower outer surface, with very feeble, scarcely discernible spicules. *Hypopygium* of ♂ (text-fig. 230, ventral view) with the dorsal processes on aedeagal apparatus at base of aedeagus in form of two blades; lateral struts shortish.

From 4 ♂♂ and 11 ♀♀ (types in the Transvaal Museum, paratypes in the South African Museum and Commonwealth Institute).

Length of body: about 7-13 mm.

Length of wing: about 7-13 mm.



TEXT-FIG. 230. Ventral view of hypopygium and side view of the posteriorly projecting basal strut of ♂ *Exoprosopa rubicunda* n. sp.

Locality: Transvaal: North-eastern Zoutpansberg Dist. (Breyer, July and Aug. 1916) (types); Waterberg Kop (6 Sept. 1903); Messina (Vernay-Lang, Kal. Exp., 5 Sept. 1930); Barberton (Munro, Aug. 1913). Southern Rhodesia: Matopo Hills near Bulawayo (Ogilvie, Oct. 1931); Hopefontein (Stevenson, 3 Sept. 1922). Northern Rhodesia: Mazabuka (Alvson, 4 Sept. 1931).

Easily recognized by the predominantly reddish body, cinnamon-brownish and faintly spotted wings, the stump from base of second posterior cell projecting into discoidal cell, black hairs on front coxae, rather slender front legs, feebly spiculated front tibiae, broadish labella, etc. It appears to differ from Bezzi's *rubella* (p. 241, *The Bombyliidae of the Ethiopian Region*, 1924) in having a very much shorter style and smaller spots in the wings. The two ♂♂ from Mazabuka in Northern Rhodesia, which are in the Commonwealth Institute, appear to represent a slight variety in which the wings tend to be more uniformly infuscated throughout and in which the black apical spot on face is small or evanescent and scales on front and middle coxae and on anterior aspect of femora are dark or blackish brown. Both have a label 'ex dead unparasitised *Nomadacris septemfasciata*' attached to them.

Exoprosopa umbrosa-section

The species belonging to this section constitute a distinct and well-defined section of the *Acrodisca*-group in which certain characters, such as a shortened face, a long stylar element, a short and more or less apically truncated discoidal cell of which the apical vein is short and only feebly S-shaped, a rhomboidal second posterior cell, medially thickened and sub-spindle-shaped front femora and the presence of stiff and rigid hairs on basal joint of front tarsus in ♀♀, are collectively present and which separate them from all the other species within this group. In his revision (p. 241, *The Bombyliidae of the Ethiopian Region*, 1924) Bezzi referred this section to what he called the *katonae*-group and listed under it his five species *katonae*, *pilimana*, *rubella*, *violacea* and *suffusipennis*. Of these five species proper descriptions of *katonae* and *pilimana*, other than the short and unsatisfactory descriptive references in his key (loc. cit., p. 235), have apparently never been published.

Exoprosopa umbrosa Lw.

(Loew, p. 243 and tab. ii, fig. 36, *Dipt. Faun. Südafr.*, i, 1860.)

(Syn. = *violacea* Bezzi, pp. 236 and 241, *The Bombyliidae of the Ethiopian Region*, 1924.)

A long series of both ♂♂ and ♀♀ in the collections before me agree in every respect with Loew's description of *umbrosa* and as far as their wings are concerned also with his illustration of the wing of that species. As these specimens also agree with Bezzi's description of *violacea* there appears to be no doubt that the latter is synonymous with the former. Bezzi appears to have been unacquainted with Loew's species. The species is characterized as follows:

Body entirely black, with a slight violaceous sheen in certain lights, the extreme hind border of scutellum sometimes dark reddish or reddish brownish; head in front sometimes very dark piceous reddish and pleural parts very dark piceous or blackish brown to a variable extent; legs also very dark piceous or blackish red, especially on lower surfaces. *Vestiture* with the hairs and bristles above and below almost entirely black; those in collar above yellowish or fulvous yellowish and some bristles in mesopleural tuft and the propleural tuft gleaming fulvous brownish or orange; some hairs in anterior part of metapleural tuft sometimes yellowish; plumula whitish and hairs on extreme sides of tergite 1 basally whitish or straw-coloured; black hairs on sides of abdomen rather dense and conspicuous; streak of hair-like scales on side of thorax above greyish whitish to fulvous yellowish; scaling on head in front, thorax above and scutellum behind gleaming greyish whitish to yellowish, that on thorax separated by three broad streaks of dark scaling, also present discally on scutellum; scaling on abdomen above composed mostly of black ones discally and along lateral margins and conspicuous, dense, snow-white ones in very broadly interrupted transverse bands, which are more or less partially complete only across base of tergite 2 and across 6 and 7; scaling on entire body below and on legs black, those on venter sometimes gleaming greyish in certain lights. *Wings* wholly smoky brownish to blackish brown, with violaceous reflections in certain lights, the anterior costal part and base slightly darker, imperceptibly merging into slightly more translucent and slightly less infuscated apical and posterior parts where the darker infuscation sometimes narrowly borders the veins; dark clouds or spots on cross veins and bifurcations, but not near ends of posterior and apical veins; terminal vein of discoidal cell relatively short, the end of cell more or less truncate, and vein between it and second posterior cell scarcely or only very slightly S-shaped; second posterior cell rhomboidal; middle cross vein much before middle of discoidal cell; first posterior cell sometimes acute or even closed apically; squamae dark, dark-fringed; halteres dark brown. *Head* with the face markedly short, markedly shorter than postantennal part of frons, thus very much shorter than in all the preceding species; antennae with joint 3 conical, rather rapidly narrowed apically, its style long, quite or even longer than half (two-thirds) length of joint itself; proboscis usually distinctly projecting beyond apex of buccal cavity, its labella long, pointed. *Legs* with the front ones stoutish, the front femora thickened in the middle, more spindle-shaped and with conspicuous, longish hairs on outer lower aspect; spicules on front tibiae well developed; basal joint of front tarsi markedly thickened in ♀ and with conspicuous, stiff or rigid hairs above; middle femora with the spines on anterior lower aspect extending from near base and those on posterior aspect from beyond middle; hind femora with two complete rows of spines, those in inner lower smaller; basal tooth of claws rather blunt or rounded apically. *Hypopygium* of ♂ (text-fig. 231 (left)) with the two spine-like processes on dorsal aspect of aedeagal apparatus at base of aedeagus shortish; lateral struts slender, long; basal strut as shown in left-hand figure.

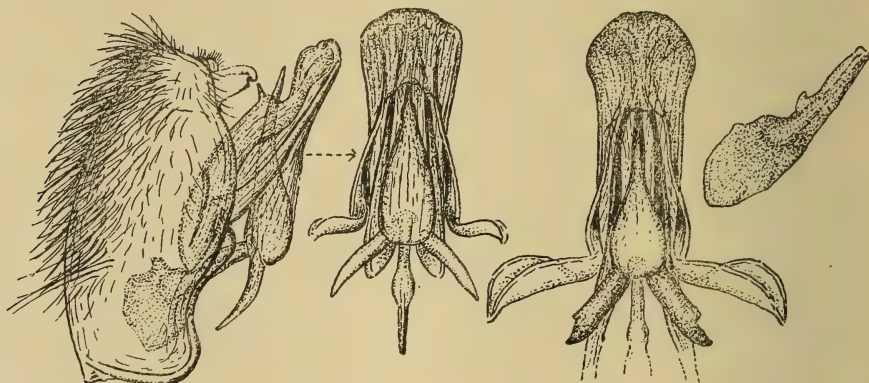
In the Transvaal, Rhodesian and South African Museums and Agricultural Dept. of Southern Rhodesia.

Length of body: about $9\frac{1}{2}$ – $15\frac{1}{2}$ mm.

Length of wing: about $9\frac{1}{2}$ – $15\frac{1}{2}$ mm.

Locality: North and North-eastern Transvaal, Southern Rhodesia, South-West Africa and according to Bezzi also in Nyasaland.

Easily recognized by its black, slightly violaceous-tinted body, darkly infuscated wings, almost entirely black vestiture and snow-white scaling on sides of abdomen. Very closely related to this species if not identical with it is a species *otello* described by Szilady from East Africa in 1942 (p. 100, *Ann. Mus. Nat. Hungar.*, xxxv (pars. zool.)). The description is, however, so short and unsatisfactory that it is impossible to arrive at any conclusion without seeing the type material.



TEXT-FIG. 231. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa umbrosa* Lw., and right ventral view of detached aedeagal apparatus and side view of basal strut of ♂ *Exoprosopa nephoneura* Hesse.

Exoprosopa nephoneura Hesse

(Hesse, p. 25, *Mem. do Museu Dr. Alvaro de Castro*, No. 1, 1950.)

This species, which I described in my paper on the Bombyliidae of the Museu Dr. Alvaro de Castro in Lourenco Marques, may be, as I stated in that paper, the same as the species *pilimana* Bezzi. from East Africa to which Bezzi referred in his key (p. 235, *The Bombyliidae of the Ethiopian Region*, 1924), but which was never described by him either previously or subsequently. It is therefore impossible to identify *pilimana* only from the few descriptive and comparative references to it in Bezzi's key. Transcribing my description the present species is characterized as follows:

Body mainly black; front half of frons and base or basal half of face brownish red or dark ferruginous; postalar calli, greater part of scutellum, hind margins of tergites and sternites (or even entire venter in ♂), sides of tergites 2 and 3

or 2-4 fairly broadly and pleurae to a variable extent reddish or reddish brown; legs sienna-brownish when denuded, otherwise dark due to black scaling. *Vestiture* with the hairs in anterior part of collar, propleural tuft, intermixed hairs on prosternal part, upper part of mesopleural tuft, some bristles on pteropleuron and hairs on at least basal half of venter fulvous yellowish, golden to fulvous brownish; anterior upper part of metapleural tuft more whitish; plumula white and hair at base of tergite 1 on sides anteriorly pale yellowish; rest of hair and bristles on head and body above and below black, those on sides of abdomen rather dense, conspicuous; scaling on head in front and three streaks on thorax above, at base of thorax and on scutellum greyish yellowish to greyish whitish, the streaks on thorax separated by dark scales; scutellum also with much dark scaling; streak of hair-like scales on sides of thorax yellowish to fulvous; scaling on abdomen above composed of conspicuous and dense white and black ones, the white ones arranged as a broad band across base of tergite 2, a patch on sides of 3 and as bands across 4-7, denser on sides; black ones arranged across hind margin of tergite 1, discally across 2 and 3, basally across rest of tergites and along lateral margins of abdomen, with some sparse yellowish or yellowish brown scales also across hinder parts of tergites 2-4 and even more sparsely posteriorly; scaling on venter mostly dark, but gleaming yellowish or greyish yellowish in certain lights across hind margins of sternites; scaling on legs dark or black. *Wings* well developed, longer in relation to body than in other members of the *umbrosa*-section, brownish to chocolate-brownish in anterior part and hyaline or greyish hyaline apically and in more than hinder half, including axillary lobe; the infuscation, however, narrowly bordering all the veins in more hyaline part and with rounded spots or clouds on cross veins and bifurcations, but none near ends of posterior and apical veins; discoidal cell broad, subtruncate apically as in *umbrosa*, its terminal vein also relatively short; vein between second and third posterior cells with a constant tendency to be continued as an appendix into discoidal cell; second posterior cell rhomboidal; first posterior cell tending to be very acute apically, more often entirely closed; middle cross vein usually much before middle of discoidal cell; squamae dark, dark-fringed; halteres brown. *Head* with the face relatively short; antennae widely separated, the style of third joint long, more than or much more than half length of joint, sometimes quite as long, the third joint thus relatively shorter than in *umbrosa* and more conical. *Legs* with the front femora thickened in the middle and spicules on front tibiae well developed; basal joint of front tarsi in ♀ markedly thickened, with dense, rigid hairs above, even denser and longer than in *umbrosa*; middle femora with one complete row of spines and some stoutish ones on outer apical aspect; hind femora with two rows of spines below. *Hypopygium* of ♂ with the aedeagal apparatus shown in text-fig. 231 (right); lateral struts rather well developed; basal strut (extreme right) dorsally with a distinct tooth-like process before middle which in this example is situated more to the right and not exactly in the middle.

In the South African Museum, Museu Dr. Alvaro de Castro and Durban and Transvaal Museums.

Length of body: about 11–16 mm.

Length of wing: about 13–19 mm.

Locality: South-West Africa (from where the types come), Transvaal, Zululand and Portuguese East Africa.

Easily recognized by its rather long and well-developed wings which are dimidiately infuscated, but with infuscations along the veins, the longer style, dark reddish infusion across front of frons and base of face and the dense rigid hairs on basal joint of front tarsi in ♀. The only other species which appears to resemble it and which also has longish wings is *suffusipennis* Bezz. (p. 332, *Res. Scient. Ins. Dipt., Voyage de Ch. Alluaud et Jeannel en Afr. Orient.* (1911–1912), 1923) described from Kenya. According to the description it, however, appears to differ from the latter in having the wings more hyaline in apical and posterior parts, the first posterior cell usually very acute or more often closed apically, much denser and longer rigid hairs on basal joint of front tarsi in ♀ and more spines on middle femora.

The species appears to be variable in the colour of the hairs on the pleurae. Some ♂♂ and ♀♀ from Zululand and Portuguese East Africa probably constitute a slight variety which differs from the more typical form in being slightly smaller, in having fewer yellowish hairs in mesopleural tuft, entirely black metapleural tuft, more and denser black hairs on venter and no red or less red across hind margins and sides of abdomen.

Cladodisca-group

Representatives of this group agree with members of the *Acrodisca*-group in having the discoidal cell in wings relatively broad at its end, with its lower angle prominently or sharply angular and projecting much into third posterior cell and provided at this angle with a stump or indication of one which projects freely into third posterior cell. They differ, however, in having the front legs normally smaller and not markedly shorter than the others, longer front femora which are nearly or quite $1\frac{1}{2}$ times length of front coxae, the front tibiae more slender and without distinct spicules, and the front tarsi are longer, much longer than half length of front tibiae. According to Bezzi more members of this group have a sharply acute first posterior cell which in many cases is stalked. Only one South African species in the collections before me can be referred to this group.

Exoprosopa acrodiscoides Bezz.

(Bezzi, p. 476, *Ann. S. Afr. Mus.*, xviii, 1921.)

Bezzi referred this species to his so-called *seniculus*-group of his subgenus *Exoprosopa* s. str., but though it probably does belong to the *Exoprosopa*-group it nevertheless more often has the typical appendix from the discoidal cell

projecting into the third posterior cell, a venational peculiarity on which Bezzi himself created his two subgenera *Acrodisca* and *Cladodisca*. To the latter subgenus he referred the North African and Palaearctic species belonging to the *suffusa*- and *rivularis*-sections which according to him differed from members of the *Acrodisca*-group practically only in the relatively longer and more slender front legs and absence of spicules on front tibiae as indicated above in my definition of Bezzi's *Cladodisca*-group. Though *acrodiscoides* agrees in most respects with members of Bezzi's subgenus *Exoprosopa* it is here placed in the *Cladodisca*-group on account of the characteristic appendix from the discoidal cell which projects into the third posterior cell. It is characterized as follows:

Body black; front part or half of frons, broad genal part or sides of face below antennae, lower sides of face, postalar calli, greater part of scutellum, hind margins of tergites, sides of tergites 2-4 broadly, entire sides of abdomen in ♂ and even entire last two or three tergites in ♂, and broad hind margins of sternites, or in ♂ even entire venter, yellowish reddish or reddish; legs with upper surfaces of femora dark, the tibiae yellowish or yellowish brown. *Vestiture* with the hair on frons and discal part of face black, but golden yellowish on sides of face, the scales on front part of frons and on face golden; collar above and below, hairs on entire pleurae, entire base of abdomen, on sides of tergite 2 and 3 (except some black apical ones) and those intermixed with black ones on sides of other tergites and hairs on venter yellowish, becoming more whitish below and at base of abdomen; notopleural, prealar, postalar and upper row of bristles on scutellum black; lower row of finer bristles on scutellum yellowish and all coxal bristles yellowish or golden; scaling on body above and below more hair-like than in the *Acrodisca*-group; that on thorax and scutellum and in streaks on sides creamy whitish; scaling on abdomen above predominantly or entirely pale, composed of ochreous yellowish and white ones, the latter arranged densely across hind margin of tergite 1, broadly across base of 2, across sides of 3 and 4 and more or less across posterior tergites, the yellowish scales more across hind margins of tergites; scaling on pleurae, coxae and venter rather conspicuously white and dense; that on legs also mostly whitish, becoming yellowish on outer apical parts of femora. *Wings* (pl. ii, fig. 3) rather long, subopaquely yellowish or pale yellowish brownish in basal and anterior part from end of anal cell across to end of costal cell and extending around apical part of discoidal cell, the rest of wing including axillary lobe hyaline, but with slightly less infuscated areas in second basal cell and base of marginal cell; hyaline parts with cloudiness along the cross veins and bifurcations and a short distance down posterior veins which are, however, not resolved into well-marked-off spots; apical vein of discoidal cell only slightly S-shaped; stump from discoidal cell into third posterior cell short; sometimes wanting; first posterior cell open apically; squamae yellowish to whitish, pale-fringed. *Head* with the interocular space on vertex relatively narrow, relatively narrower than in most of the preceding species; antennal joint 3 elongate-conical, its style long, a little more than half length of joint. *Legs* with the front ones

normally developed, not markedly shortened; front femora without spinules, nearly or quite $1\frac{1}{2}$ times length of front coxae; front tibiae slender and without any distinct or discernible spicules; middle and hind femora with double rows of spines below and hind tibiae with more spicules than in members of *Acrodisca*-group.

A ♂ and ♀ (types) and another ♀ in the South African Museum.

Length of body: about $11-12\frac{1}{2}$ mm.

Length of wing: about $14-16\frac{1}{2}$ mm.

Locality: South-West Africa: Mafa in Ovamboland (Barnard, Feb. 1921) (♂-type); Nomtele in Ovamboland (Barnard, Feb. 1921).

Trinaria-group

The distinguishing characters of this group according to Bezzi are a rather narrowish frons in both sexes, a rather blunt face, yellow bristles on thorax and scutellum, scaleless sternopleuron, shortish hairs on sides of abdomen, presence of hairs on last tibiae in addition to spicules and certain venational and wing-characters, such as a bluntly ending first posterior cell which is distinctly stalked, a second posterior cell which is narrower than the third and a baso-marginal yellowish pattern which is edged with fuscous.

Of the three known species which have been referred to this group, only one, *rutiloides* Bezzi., has been described from Africa and that from Gambia in West Africa. The species which are here provisionally referred to this group agree with it practically only in the presence of the characteristic bluntly ending and stalked first posterior cell. This character, however, is not found in any other species of *Exoprosopa* in South Africa. In all other cases where the first posterior cell does not open on the hind margin its end is sharply acute and the stalk is practically non-existent. The species recorded here also have certain other characters, such as the presence of broadish, cuneiform scales on the abdomen of which the white and dark ones are arranged alternately as a row of spots across the last three tergites, and a certain type of wing-pattern, which are not found in other South African species. In view of the fact that none of Bezzi's sub-generic divisions are strictly mutually exclusive and that many transitional forms are to be found the two species described below may represent an African section or subdivision of the Palaearctic *Trinaria*-group which possesses certain other features in combination with the special venational character of *Trinaria* and which are not shared by the Palaearctic representatives. The peculiar genitalia of the ♂♂ which differ from those of most other species of *Exoprosopa* on the other hand suggest the erection of a new genus. In view of the fact, however, that a few other South African species of *Exoprosopa* have a similar type of hypopygium though their other taxonomic characters do not deviate much or markedly from those characterizing *Exoprosopa* s. str., the erection of a separate new genus, without a careful study of all the Palaearctic forms of the subgenus *Trinaria*, does not seem justified.

Exoprosopa mira Hesse(Hesse, p. 181 and fig. 5, *Ann. Transv. Mus.*, xvii, 1936.)

This species which I fully described in the above-mentioned journal is characterized as follows:

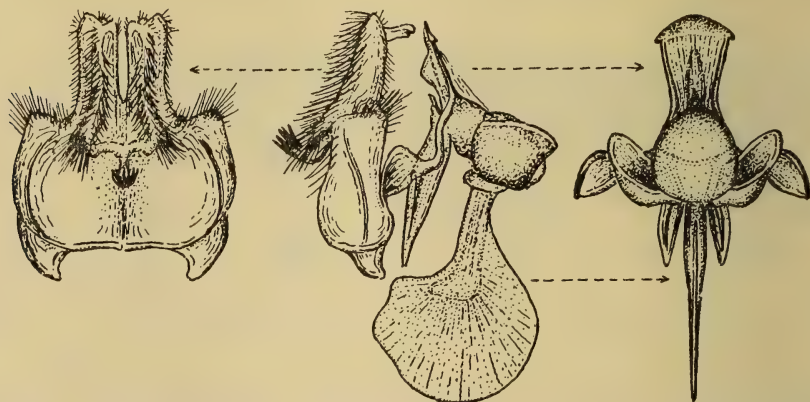
Body mainly black or dark blackish brown; sides of face below antennae and buccal region of face, humeral calli, apical three-quarters of scutellum, sides of tergites 2-4 (more broadly in ♂), hind margins of tergites and sternites, sutural parts of pleurae to a variable extent and the denuded legs yellowish brownish to toffee-brownish. *Vestiture* with the hairs on head, hinder part of collar above, prealar, postalar and scutellar bristles, numerous bristles and hairs on meso-



TEXT-FIG. 232. Right wing of ♀ *Exoprosopa mira* Hesse. (After Hesse, fig. 5, p. 181, *Ann. Transv. Mus.*, xvii, 1936.)

pleuron and sternopleuron, those in hinder part of metapleural tuft, on coxae, sides of abdomen, excepting some whitish ones on anterior part of tergite 1 on sides, and the hairs on venter dark or black; front part of collar, intermixed hairs on mesopleuron, propleural tuft and anterior part of metapleural tuft sericeous yellowish to light fulvous brownish in certain lights, especially on pleurae; scaling on head in front gleaming bronzy to yellowish; that on thorax bronzy, with streaks of darker ones, whitish on scutellum and postalar calli; scaling on abdomen above broadish, cuneiform, composed of dark bronzy brownish gleaming, blackish and white ones, the white ones arranged transversely on sides of base of tergite 2, sparsely on disc of 2, densely across base of 3 on sides and more in spots discally, and as conspicuous spots separated by black spots across last three tergites; scaling on venter bronzy yellowish, but with whitish ones along middle and in patches on sides; scaling on legs mainly bronzy brownish. *Wings* (text-fig. 232) with the infuscation and spots dull blackish brown; infuscation in ♂ more reduced, extending beyond base of second vein only as a narrow streak below first vein and with the spots also smaller, the two at bases of third and fourth posterior cells smaller, not confluent with anterior infuscation as in ♀, the entire discoidal and enclosed sub-

marginal cells being hyaline and apical half of second basal cell also mostly hyaline; squamae dark brownish, brown-fringed; halteres dark velvety brown. *Head* with antennal joint 3 conical, slightly shorter in ♂, its style longer in ♂, much more than half the joint, in ♀ only about half or a little longer than half length of the joint; proboscis projecting only a little beyond face. *Legs* with about 4-7 spines on lower outer aspect and 5-8 on inner side below on middle femora; hind ones with about 4-7 on outer lower aspect and 7-11 smaller ones on inner aspect. *Hypopygium* of ♂ (text-fig. 233) with a prominent shoulder on sides of shell-like basal parts (middle and left), their apical parts narrowish, provided above with a medial hairy ridge which projects posteriorly in a slight



TEXT-FIG. 233. Hypopygium of ♂ *Exoprosopa mira* Hesse showing a dorsal view of the basal parts (left), a side view of the entire hypopygium (middle) and a ventral view of the detached aedeagal apparatus.

lobe but which also joins its partner transversely in the midline to form a medial, projecting, dorsal lobe bearing some conspicuous, flattened, chitinous spines, arranged more or less in a half circle; aedeagal apparatus (middle and right) with a prominent, flattened, ventral process as shown in figures; lateral struts broad, scoop-shaped; basal strut broad.

In the Transvaal Museum.

Length of body: about 6-8 mm.

Length of wing: about $6\frac{1}{2}$ - $8\frac{1}{2}$ mm.

Locality: Bechuanaland.

The species appears to vary considerably in size and certain specimens may reach a length of $9\frac{1}{2}$ -12 mm., with a wing-length of about 10-12½ mm.

Exoprosopa aphelosticta n. sp.

This species, based on a solitary ♀-specimen, may only be a specialized local variety of *mira*, but as it differs in certain important respects, it is provisionally

referred to a separate species. From *mira* it differs in being slightly larger; in having the antero-costal infuscation slightly shorter and not reaching spot at base of submarginal cross vein; the clear area in apical part of second basal cell more extensive or larger; an entirely clear discoidal cell; much smaller spots at bases of third and fourth posterior cells which as in the ♂ of *mira* are not confluent with the main anterior infuscation; the presence of an extra spot at apex of discoidal cell; front part of frons and face reddish or more extensively so than in *mira*; streak of longish scales on sides of thorax distinctly more conspicuous, denser, more whitish; distinctly much shorter and sparser hairs on sides of abdomen; hairs on sides of tergite 1 entirely whitish; and those at base of venter more whitish.

Type in the Transvaal Museum.

Length of body: about $13\frac{1}{2}$ mm.

Length of wing: about 14 mm.

Locality: Southern Rhodesia: Victoria Falls (H.E.I., 22 Aug. 1920).

Defilippia-group

The genus *Defilippia* which Lioy established in 1864 and which both Griffini and Coquillett subsequently recognized as of generic value, was reduced by Bezzi in 1924 to the status of a distinct subgenus of *Exoprosopa*. Subsequently both Paramonow in 1928 and Engel in 1936, however, discarded this subgenus entirely. As far as the South African forms of it are concerned the removal of this subgenus as a distinct entity is justified, for it is not homogeneous and the various species which have been allocated to it and others which may with equal justification be included in it, show so many variations in various directions and also in the venational characters which are supposed to be diagnostic for the entire series that any attempt to define or restrict the subgenus becomes impossible. For the purpose of taxonomic convenience and for the easy alignment of the various forms they may be provisionally referred to a group which does not strictly align the various species according to their true natural affinities, but which nevertheless attempts to restrict certain forms with certain venational characters to a special category. The following combination of venational and wing characters, either present entirely or in greater part, characterize this group: Axillary lobe usually normally rounded, usually less than twice or scarcely twice (rarely twice) width of anal cell, not or rarely sub-angularly dilated; vein between discoidal and second posterior cells much or very distinctly S-shaped, very much more than half length of base of third posterior cell, sometimes only a little shorter than latter and usually longer or much longer than anterior apical vein of second basal cell, usually parallel or subparallel to hind margin of wing; apical part of discoidal cell usually long or distinctly produced and acute or subacute; basal part of second posterior cell equally produced; second posterior cell with its base and sides usually very sinuous, contorted or S-curved.

Exoprosopa capensis-section

Representatives of this section which constantly have no stump or appendix to the lower vein of the discoidal cell and which therefore belong to the *Defilippia* and *Exoprosopa*-groups are to a certain extent an extension of sections of the *Acrodisca*-group (*recurrens*, *polysticta*, *zonata*, *aridicola*, etc.) which more constantly have such an appendix. In common with the latter species, especially with specimens of these which lack an appendix and which may therefore be transferred to this section, species belonging to this section are characterized by a very short or rudimentary style, spotted wings, shortish and stoutish front legs of which the tarsi are short and stoutish, the femora thick and spinulate and the tibiae distinctly spiculate.

Exoprosopa capensis (Wied.)

(Wiedemann, p. 279, *Aussereurop. Zweifl. Ins.*, i, 1828 (as *Anthrax*); Bezzi, p. 154 and pl. ii, fig. 30, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 279 and 295, *The Bombyliidae of the Ethiopian Region*, 1924.)

There is some doubt as to the identity of this species. Wiedemann's original description differs in several points from the specimens before me which Bezzi referred to *capensis*. As no other South African species of *Exoprosopa* in the large collections before me can be made to agree more closely with Wiedemann's description, these specimens are also provisionally referred to Wiedemann's *capensis*. Wiedemann's comparison of the wing of *capensis* with that of the Palaearctic *algira*, however, suggests a wing-pattern more like that of some forms of *heros*. Neither can much help be gleaned from Macquart's notes and references to *capensis* (see p. 48, *Dipt. Exot.*, ii, 1840), for as Bezzi has also stated it is quite evident that Macquart confused another species, with a distinct style, with Wiedemann's *capensis*. Bezzi himself was not consistent in his identification of this species, for a specimen in the Transvaal Museum from Willowmore which he identified as *capensis* for the late Dr. Brauns belongs to an entirely different species described below. The species here referred to *capensis* is slightly variable and is characterized as follows:

Body mainly black above; anterior half of frons and greater part of face or at least base and sides of face yellowish, the blackish apical spot above on face variable in extent and fairly extensive in a Namaqualand form; postalar calli, greater part of scutellum, sides of tergites 2 and 3 obscurely and to a variable extent, hind margins of tergites, broader hind margins of sternites, pleurae to a variable extent and more so in a Cape form, and the legs yellowish or pale yellowish red. *Vestiture* with the hairs on head in front, excepting a few golden ones below antennae in more typical form, those on thorax above, thoracic and scutellar bristles, some intermixed bristles on mesopleuron in Namaqualand form, some hairs across tergite 1 and on its sides apically, those on sides of abdomen from apex of tergite 2, numerous hairs on posterior part of venter,

especially in ♀, and the coxal bristles black; hairs in collar, in mesopleural tuft, to a lesser extent in metapleural tuft and intermixed on venter golden yellowish to deep yellowish; rest of hair on pleurae below, sides of abdomen basally and on basal part of venter white; scaling on head in front dense, yellowish to yellowish white or whitish; that on thorax above relatively dense, mainly yellowish to greyish yellowish, separated by streaks of darker or brownish ones; scaling on abdomen above dense, longer on sides, composed mainly of broadish, greyish yellowish, yellowish to ochreous yellowish ones, whitish ones and a few black ones, the whitish ones concentrated as bands across bases of tergites 2, 6 and 7 and sides of 3, 4 and 5, the more ochreous ones present across hind margins of tergites, and the few or sparse dark ones present on each side submedially across bases of 3-5 and across middle of 2; scaling on pleurae relatively dense, broadish, white; that on venter also composed of broad scales, mainly white on sternites 2 and 3 and along a broadish submedial streak posteriorly on each side, the rest of the scaling more yellowish to even ochreous, more extensively white in certain forms; scaling on legs mainly yellowish to whitish. *Wings* infuscated pale yellowish brownish to brownish in antero-basal half up to near base of submarginal cross vein, but with a tendency for Namaqualand ♂♂ to have infusions in apical part of marginal cell as well, with a clearer area or spot near base of first posterior cell and a relatively large praediscoidal clear spot; darker rounded spots or clouds present on cross veins and bifurcations, two being usually present on apical vein of discoidal cell; apical veins without any spots or with one near end of second vein or in some forms with a spot or spots near ends of both apical veins and usually also with an indication of a small faint one near end of third vein; first posterior cell sometimes tending to be much narrowed apically; discoidal cell not dilated apically, its apical vein usually S-shaped, rarely tending to be straight; second posterior cell not much contorted, more rhomboidal. *Antennae* with joint 3 elongate-conical, relatively stoutish, tending to be more rapidly narrowed in the Namaqualand form, its style very short, not longer, usually shorter than short second antennal joint. *Legs* with the front ones shortish and stout, the front femora stoutish, distinctly spinulate, the front tibiae distinctly spinulate and front tarsi short, only about half length of front tibiae; spicules in outer upper row on hind tibiae not numerous. *Hypopygium* of ♂ as shown in side view in text-fig. 234.



TEXT-FIG. 234. Side view of hypopygium of ♂ *Exoprosopa capensis* (Wied.).

In the British and South African Museums.

Length of body: about 7-11 mm.

Length of wing: about 7-10 mm.

Locality: South-western Cape to Namaqualand, the Richtersveld and South-West Africa.

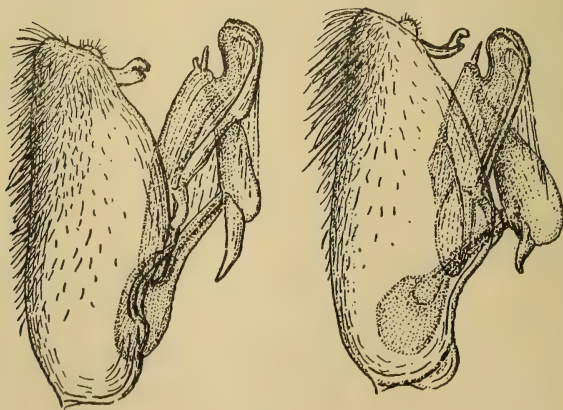
Exoprosopa neurospila-section

Members of this section usually have the wings, in addition to spots, more uniformly infuscated throughout or appearing reticulate, due to more extensive or broader infusions and cloudiness along all or most of the veins, leaving only the middle parts of the apical and posterior cells clearer. The front legs are usually normally slender, with the front tibiae non-spiculate.

Exoprosopa neurospila Bezz.

(Bezzi, p. 145 and pl. ii, fig. 28, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 251, *The Bombyliidae of the Ethiopian Region*, 1924.)

Body black; face yellowish to a variable extent, either entirely yellowish or with a dark spot on sides, sometimes, especially in some ♀♀, mainly dark; hinder half or sometimes only hind border of scutellum, sides broadly of abdomen, especially in ♂, or at least sides of tergites 2-4 broadly, hind margins of tergites to a variable extent, especially in ♂, sutural parts of pleurae, broadish hind margins of sternites or sometimes entire venter, and the legs yellowish or yellowish red. *Vestiture* with the hairs on head in front entirely black and the scales sparse and yellowish or greyish yellowish; hairs in collar above, on pleurae, venter and sides of tergite 1 and sides in basal half of 2 yellowish; prealar, postalar and scutellar bristles and hair on thorax above and sometimes a few intermixed ones on mesopleuron black; hairs on sides of abdomen black, not very dense; scaling on thorax above yellowish, but with indistinct streaks of darker ones; scaling on abdomen above composed of yellowish and black



TEXT-FIG. 235. Left: Side view of hypopygium of ♂ *Exoprosopa neurospila* Bezz. Right: Side view of hypopygium of ♂ *Exoprosopa nigrovenosa* Bezz.

ones, the former arranged more or less sparsely in transverse bands across bases and hind margins of tergites; scaling on venter whitish along middle parts, but with dark ones on sides; scaling on legs mostly yellowish on inner lower aspect and black or dark on outer upper aspect. *Wings* uniformly infuscated brownish to chocolate-brownish, with sometimes only a slight indication of being slightly clearer in middle of cells; nine roundish darker spots on cross veins and bifurcations and sometimes a very faint small one near end of vein between first and second posterior cells, but without any spots near ends of posterior veins or cells; second vein rather deeply and much recurved apically; squamae yellowish, pale-fringed. *Antennae* with joint 3 conical, its style about half, or more usually less than half, as long as the joint. *Hypopygium* of ♂ (text-fig. 235, left) with the two dorsal processes of aedeagal apparatus at base of aedeagus shortish.

In the Transvaal and South African Museums.

Length of body: about $8\frac{1}{2}$ –12 mm.

Length of wing: about 9–13 mm.

Locality: Zululand and North-eastern Transvaal.

Exoprosopa nigrovenosa Bezz.

(Bezzi, p. 146, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 259, *The Bombyliidae of the Ethiopian Region*, 1924.)

Body, including head in front and entire face or at least greater discal part of latter, the scutellum and abdomen, entirely black; pleurae and venter or hind margins of sternites more often brownish; legs dark brown to blackish brown, dark-scaled. *Vestiture* with the hairs and bristles above and below mostly black; anterior part of collar above, some intermixed bristly hairs in upper part of mesopleural tuft and sometimes a few in prosternal tuft yellowish; hair on sides basally of tergite 1 and plumula whitish; scaling on head in front gleaming greyish or sometimes dark; fine scaling on thorax and scutellum mostly dark, gleaming greyish, that along centre more greyish or whitish; streak on each side gleaming pale brassy to greyish whitish like scales across hind border of scutellum; scaling on abdomen above composed of whitish and black ones, the white ones denser and more extensive on sides and arranged more or less in narrowish slightly bisinuate bands across hind margins of tergites, a central series of white patches being usually evident; scaling on venter entirely black. *Wings* infuscated very dark blackish brown, appearing more reticulate, the middle of apical part of marginal cell, middle parts of apical two cells, middle of discoidal and posterior cells being clearer, the veins being broadly bordered with fuscous; distinct roundish darker spots or clouds present on cross veins and bifurcations and sometimes also at end of second vein; second vein very sinuous and deeply recurved apically; apical vein of discoidal cell much S-curved; halteres brownish. *Head* with the face rather sharply pointed;

antennal joint 3 conical, its style not quite half, to about half, length of joint. *Hypopygium* of ♂ (text-fig. 235, right) with dense and short hairs on apical parts of basal parts; beaked apical joints more compressed, curved and longer than in *neurospila*; two processes at base of aedeagal apex on dorsum of aedeagal apparatus vestigial or wanting; basal strut more racket-shaped.

In the Natal, Transvaal and South African Museums and Commonwealth Institute.

Length of body: about 8–12 mm.

Length of wing: about $9\frac{2}{3}$ –13 mm.

Locality: Natal and Transvaal.

Exoprosopa cafrariana n. sp.

Closely resembles *nigrovenosa*, but differs in having the sides of face more extensively yellowish; hinder part of scutellum sometimes reddish or obscurely so; sides of tergites 2 and 3 or 2–4, especially in ♂, reddish; venter more reddish to a variable extent, sometimes with a central row of black spots; legs paler brownish. *Vestiture* with the hairs in upper part of mesopleural tuft, those in greater part or entire propleural tuft, in metapleural tuft or in front part of the latter and at base of venter yellowish or straw-coloured yellowish, not black as in *nigrovenosa*; scaling on venter dark on sides and along centre, separated by pale ones submedially on each side. *Wings* with the apical and hinder parts distinctly clearer, due to distinctly narrower or fainter fuscous borders to veins and which are sometimes even absent near ends of veins; dark spots or clouds on cross veins and bifurcations similar. *Hypopygium* of ♂ also resembles that of *nigrovenosa* (cf. text-fig. 235, right), but apical dorsal parts of basal parts not so conspicuously hairy; lateral struts slightly broader; basal strut racket-shaped, less rounded, its lower apical part more angularly produced posteriorly.

From 3 ♂♂ and 6 ♀♀ (holotype in the Transvaal Museum, allotype in the South African Museum, paratypes also in Albany and British Museums).

Length of body: about $7\frac{1}{2}$ – $10\frac{1}{2}$ mm.

Length of wing: about $8\frac{1}{2}$ – $11\frac{1}{2}$ mm.

Locality: East Cape Province: Jeffreys Bay, Humansdorp (Brauns, 30 Feb. 1923 (types)); Katberg (Turner, 11–18 Nov. 1933); Queenstown (Turner, 16 Jan. to 10 Feb. 1933); Seymour (Péringuey, 1892); Grahamstown (Hewitt, March 1913); Kabeljauws (Hewitt, Jan. 1925).

Exoprosopa corvinoides n. sp.

Body black; more than front half of frons, antennal joints 1 and 2, entire face, sides of abdomen very broadly, especially in ♂ where only a central row of segmental spots are black, sides of tergites 2 and 3 very broadly in some ♀♀ where black is more extensive, hind margins of tergites, entire venter and legs pale yellowish red or almost salmon-pinkish; postalar calli and greater part of

scutellum and sutural parts of pleurae more reddish. *Vestiture* with the hairs on head mainly black, but those on sides of face to a variable extent golden or reddish yellowish, the scaling on head in front yellowish; hairs in collar, on pleurae, sides of tergite 1, greater basal part on sides of 2, a tuft basally on sides of 3 and those on venter straw-coloured yellowish, becoming distinctly more whitish below; notopleural bristles, postalar ones, fine hairs on thorax above, scutellar bristles and hairs on sides of abdomen and across hind margin of tergite 1 and on other tergites black; scaling on thorax mainly greyish yellowish to yellowish; scaling on abdomen above composed of pale yellowish whitish, yellowish and black ones, the pale ones more or less arranged across bases and apices of tergites 2 and 3 and more across hind margins of rest of tergites, those in ♂ usually more distinctly whitish, the black ones more discally and also across hind margin of tergite 1 and sides of hind margins of others, more so in ♀ where they are even intermixed across hind margin of last tergite; scaling on venter white to pale yellowish white and that on legs whitish, with some black ones on anterior or outer surfaces. *Wings* more or less uniformly infuscated yellowish brownish to dark brownish, but with the apical two cells clear and central parts of discoidal and posterior cells and apical part of marginal cell also less infuscated or even clear; slightly darker clouds on cross veins and bifurcations usually less conspicuous, scarcely evident or only indicated; discoidal cell more depressed above than in related species, its apical vein slightly S-shaped and its apical part or base of second posterior cell not so much produced as in related forms; squamae pale yellowish brownish, pale-fringed; halteres with almost white knobs. *Head* with the interocular space on vertex in ♂ slightly narrower than in ♀; antennal joint 3 rather stoutish, elongate-conical, longer than joints 1 and 2 combined, its style short, stoutish, only about a fourth or fifth length of joint itself. *Hypopygium* of ♂ is transitional between that of *neurospila* and *nigrovenosa* (cf. text-fig. 235); basal parts shorter, more truncated apically than in both these species, with hairs like those of *neurospila*; dorsal processes on aedeagal apparatus at base of aedeagus minute, but slightly more evident than in *nigrovenosa*; lateral struts slender, relatively longer than in *neurospila*; basal strut bat- or chopper-shaped.

From 3 ♂♂ and 6 ♀♀ (types in the South African Museum, paratypes in the British Museum).

Length of body: about 10–11 mm.

Length of wing: about 10–12 mm.

Locality: Koup Karoo: Oukloof in Beaufort West Dist. (Zinn and Hesse, Jan. 1949) (types); Rooinek Pass in Laingsburg Dist. (Zinn and Hesse, Jan. 1949). Tankwa Karoo in Sutherland Dist. (Zinn and Hesse, Jan. 1949). South-West Africa: Aus (Turner, Jan. 1930).

Resembles *corvina* Lw. of the *Metapenta*-group very closely in the infuscation of the wings and the red on the sides of the abdomen, but may at once be distinguished by the absence of an extra posterior cell and an apically less dilated

discoidal cell, the very pale yellowish frons, paler legs, absence of numerous intermixed dark hairs on pleurae, etc. The presence of two specimens of this Karoo species from South-West Africa without any other records from the territory in between is interesting, but nevertheless suggests either the possibility that locality-labels were confused, for the late Mr. Turner also collected at Matjiesfontein in the Karoo or that this species is not common and that despite our intensive collecting in Namaqualand and adjacent regions the South African Museum staff never obtained it.

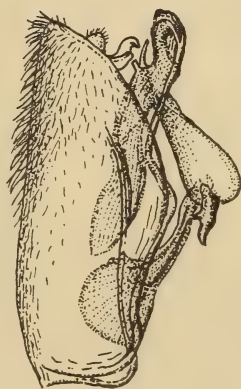
Exoprosopa leucothyrida n. sp.

(Syn. = ? *venosa* Loew, nec Wiedemann, p. 237 and tab. ii, fig. 41, *Dipt. Faun. Südaf.*, i, 1860; syn. = *venosa* Bezzi, nec Wiedemann, p. 146, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 259, *The Bombyliidae of the Ethiopian Region*, 1924.)

There appears to be much confusion as to the identity of Wiedemann's species *venosa* which he described from the Cape in 1928 (p. 280, *Aussereurop. Zweifl. Ins.*, i). According to Paramonow (p. 80, *Acad. d. Sc. de L'Ukraine*, No. 9 (*Trav. Mus. Zool. Kiev*, No. 11), 1931) the three specimens in the Berlin Museum which Wiedemann determined as *venosa* and which probably constitute a part of the original batch on which the species is based, belong not to the *Defilippia* but to the *Metapenta*-group. Paramonow further states that two other specimens, also in the Berlin Museum, which Loew determined and described as *venosa* (loc. cit., p. 237) differ specifically from the three specimens determined by Wiedemann. It is thus evident that Loew confused his species with the *venosa* s. str. of Wiedemann. Subsequently Bezzi, who evidently did not see Wiedemann's original material based his determination of *venosa* on Loew's description. As the specimens considered here agree in most respects with the description of Loew's *venosa* and also with a specimen determined as such by Bezzi they are considered to be identical with Loew's species, but not with the *venosa* of Wiedemann which has an extra posterior cell and which may probably prove to be the same as Macquart's *pentala* (see under that species). The material in the collections before me is therefore described provisionally as a new species. It is, however, quite possible that Wiedemann himself confused two or more species and that the specimen or specimens mentioned by him as being represented in Westermann's collection may not be specifically identical with the three specimens in the Berlin Museum. An examination of all Wiedemann's original material will be necessary to clear up this point. The species dealt with here appears to be variable in size, in the development of the red on the face, the scutellum and on the abdomen and also in the intensity of the spots or clouds in the wings. It is characterized as follows:

Body mainly black; sides of frons in front and face reddish to a variable extent, in some specimens with a black spot on sides of face; entire scutellum or hinder part reddish; abdomen fairly broadly reddish on sides, or on sides

of tergites 2 and 3, the hind margins of tergites usually conspicuously reddish; venter mainly reddish or with broad red hind margins; legs pale yellowish red to brownish. *Vestiture* with the hairs on head in front predominantly or entirely black and the scaling yellowish or darkish, gleaming greyish yellowish; collar above in front, upper part of mesopleural tuft, greater hinder part or entire propleural tuft, front part or much of metapleural tuft and at least base of venter, sometimes entire venter yellowish to straw-coloured yellowish; tuft at base on sides of tergites 1 and 2 more whitish; hinder part of collar above, hairs on thorax above, notopleural hairs and bristles on thorax and scutellum, lower part of mesopleural tuft (or in ♀ of some forms greater part of this tuft), sometimes front part of propleural tuft, some hairs in hinder part of metapleural tuft (or sometimes almost entire metapleural tuft) and on sides of abdomen black; hinder part of venter usually also with some or much dark hair; scaling on thorax above yellowish or greyish in three streaks separated by dark ones, streak on sides yellowish to greyish whitish; scaling on abdomen above composed of dark, yellowish whitish or yellowish and white ones, the pale ones arranged as a broadish band across base of tergite 2, across hinder part of 2, across base of 3 to a variable extent and as bisinuate bands across hinder parts of the others, with usually narrowish bands or traces of bands across bases of the others as well, leaving the dark scaling in form of crescent-shaped segmental patches on each side of middle; scaling on venter in form of a lateral and a medial row of dark-scaled segmental patches, separated by pale or whitish scaling submedially on each side; scaling on legs either dark above and pale below or mainly dark. *Wings* infuscated yellowish brownish to very dark chocolate-brownish or even blackish brown basally and anteriorly, the infuscation occupying at least basal half of anal and axillary cells, but sometimes more extensively, especially in ♂, and extending as broad fuscous borders along apical and posterior veins to a variable extent and of variable width, with the apical and hinder parts, however, usually more clear, due to clearer areas in middle of cells, the clear area in apical half of discoidal cell usually very conspicuous, large and outstanding; spots or clouds on cross veins usually distinctly evident, sometimes markedly conspicuous, often with two at apex of discoidal cell and sometimes also with a spot at end of second vein and near end of vein between anal and axillary cells; praediscoidal clear spot large and conspicuous. *Antennae* with joint 3 elongate-conical, its style usually about half, or sometimes more than half, as long as joint, occasionally a little less than half. *Hypopygium* of ♂ (text-fig. 236) with relatively shortish hairs on basal parts; lateral struts flattened and with a dentate process on upper margin.



TEXT-FIG. 236. Side view of hypopygium of ♂ *Exoprosopa leucothyrida* n. sp.

From 5 ♂♂ and 10 ♀♀ (types in the South African Museum, paratypes in the Transvaal Museum, Rhodesian and British Museums).

Length of body: about $10\frac{1}{2}$ –15 mm.

Length of wing: about 12–17 mm.

Locality: South and Eastern Cape: Cape Town (Butler, Dec. 1884) (holotype); Table Mountain (Thorne, Jan. 1935) (allotype); Schusterskraal, (Jan. 1947); Bain's Kloof (Dickson, Dec. 1948); Mossel Bay (Turner, Feb. 1922); Jeffreys Bay, Humansdorp (Brauns, 30 Dec. 1923); Fort Brown (Walton); Swartkops (Brauns, Dec. 1923); Uitenhage (Munro, March 1911). Moordenaars Karoo in Laingsburg Div. (Mus. Exp., March 1937). Griqualand West: Kookfontein (Viljoen, March 1917). Orange Free State: Bloemfontein (Irving, 1 Jan. 1921; Munro, 29 Nov. 1914).

Exoprosopa guillarmodi n. sp.

This species is almost inseparable from *leucothyrida* and its forms and may almost be considered as a special variety of the latter. The hypopygium of the ♂, however, differs to such an extent that it must be referred to a separate species. The species differs from *leucothyrida* in being slightly smaller; in having the entire frons even on sides in front and sometimes even greater part of face dark; at least basal half or sometimes even greater part of scutellum dark; sides of tergites 2 and 3 distinctly less or much narrower reddish, sometimes almost entirely black; hind margins of tergites scarcely or only very narrowly reddish; propleural tuft and metapleural tuft with more black hairs; abdomen above with much fewer or in some specimens without any dark scaling, the black ones tending to be replaced by more yellowish ones; darker spots in wings (pl. ii, fig. 4) usually more conspicuously spot-like, the clear spot in discoidal cell relatively smaller, more well marked off or even more conspicuous; praediscoidal spot distinctly smaller; in having relatively longer hairs on basal parts of hypopygium; much shorter and less flattened lateral struts which lack a dentate process; and a straight, more racket-shaped basal strut.

From 7 ♂♂ and 7 ♀♀ (types in the South African Museum).

Length of body: about 7–9½ mm.

Length of wing: about $8\frac{1}{2}$ –10 mm.

Locality: Basutoland: Mamathes (Guillarmod, Jan. 1943 (holotype), 7 Feb. 1944, 29 Dec. 1946 (allotype) and 10 March 1951); Mahlatsa (Guillarmod, 12 Jan. 1948 and 30 Dec. 1951). Griqualand East: Kokstad (Cross, 19 Dec. 1940). West Transvaal: Potchefstroom (Zumpt, 22 Jan. 1951).

The ♂-specimens from Potchefstroom and Kokstad respectively appear to represent a dark variety in which the greater part or entire face and scutellum are black and the red on sides of abdomen much reduced or absent and the pale scaling on abdomen above is more whitish. They seem to be transitional between *caffrariana* and the more typical *guillarmodi*.

Exoprosopa maculosa-section

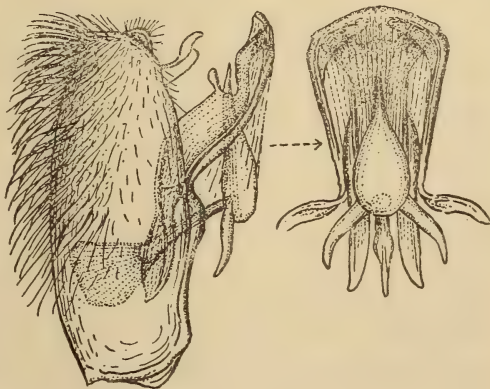
Species grouped under this section more or less have the following characters in common:

The wings are not uniformly infuscated and, apart from the spots or clouds on cross veins and bifurcations, the apical and posterior parts are distinctly more extensively clear or hyaline or at least less infuscated, without or scarcely any broad, extensive and continuous infuscations along posterior veins, the wings thus appearing more spotted than in *neurospila*-section.

Exoprosopa porrectella n. sp.

A ♂-specimen of a slight variety of this species was wrongly identified by Bezzi as *capensis* which it superficially resembles. This new species, however, differs from *capensis* in the following respects:

Face distinctly longer and broader, only a little shorter than postantennal distance to ocellar tubercle, whereas in *capensis* it is distinctly shorter, and entire frons and greater discal part and sides of face extensively black; antennal joint 3 more sharply conical, tapering more rapidly apically, its style a little longer, quite as long as or even a little longer than antennal joint 2; only about or a little more than hinder half of scutellum reddish. *Vestiture* with the scaling on face gleaming more brassy or silvery; scaling on abdomen above in a relatively narrower and fainter white band across base of tergite 2, with comparatively fewer white ones on sides of 3 and on 6 and 7, and with the preponderating yellowish ones arranged more bisinuate across middle of 1 and hinder parts of 3-5, and with more dark scales basally on each side of the tergites; scaling on body below relatively less dense on pleurae. *Wings* with the infuscation in antero-basal part, though similar, extending apically more obliquely across to apex of costal cell beyond base of submarginal cross vein, with similar spots on cross veins and bifurcations, but without any spots near ends of apical veins and with the two spots or clouds on apical cross vein of discoidal cell usually confluent and also confluent with the main anterior infuscation in basal half of first posterior cell; middle cross vein more before middle of discoidal cell; first posterior cell more broadly open apically. *Legs* with distinctly more slender and relatively longer front ones; front femora more slender, not distinctly spinulate; front tibiae slen-



TEXT-FIG. 237. Side view of hypopygium and ventral view of detached aedeagal apparatus of ♂ *Exoprosopa porrectella* n. sp.

der, non-spiculate and front tarsi longer, more slender, distinctly more than half as long as front tibiae. *Hypopygium* of ♂ (text-fig. 237) differs from that of *capensis* in having the slender parts of beaked apical joints longer, more curved upwards and outwards and outer angle of these joints more prominently angular; ventral aedeagal process very broad, much broader than in *capensis*.

From 6 ♂♂ and 9 ♀♀ (types in the South African Museum, paratypes in the Transvaal Museum).

Length of body: about $7\frac{1}{2}$ –9 mm.

Length of wing: about $7\frac{1}{2}$ – $9\frac{1}{2}$ mm.

Locality: Koup Karoo: Laingsburg Div. (Mus. Exp., Feb. 1938) (types); Voëlfontein in the Prince Albert Div. (Hesse, March–April 1929). Great Karoo: Willowmore (Brauns, 10 Jan. 1912; Dec. 1921; Jan. 1922; 15 Feb. 1923).

Like *capensis* this species is variable and the specimens from Willowmore differ from the more typical form in having paler, more yellowish legs, more yellowish or red on sides of face below, more reddish on sides of tergites 2 and 3 and also more red across hind margins of tergites; less darkly infuscated wings; apical vein of discoidal cell less straight, more sinuous or S-curved; basal band of whitish scaling across tergite 1 narrower, less conspicuous, the whitish scales on sides of 3 and across 6 and 7 also less evident.

Exoprosopa maculifera Bezz.

(Bezzi, p. 147, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 251 and 261, *The Bombyliidae of the Ethiopian Region*, 1924.)

Characterized as follows:

Body black; sides of frons in front, entire face or greater part of face, head below or sides of occiput below to a variable extent, postalar calli, greater part of scutellum, sides of tergites 2–4 broadly or even entire sides of abdomen, broadish hind margins of tergites, still broader hind margins of sternites or even entire venter, pleurae to a variable extent and legs pale yellowish red. *Vestiture* entirely yellowish, with the exception of black hairs on head in front, hairs on thorax, notopleural hairs and bristles on thorax and scutellum, some intermixed dark or black hairs on mesopleuron, some black hairs on coxae, black hairs on sides of abdomen and apically on sides of tergites 1 and 2, becoming more whitish on sternal parts and on venter; scaling on head in front, thorax and scutellum whitish to yellowish, that on thorax separated by three streaks of darker, more brownish scales; scaling on abdomen above composed of whitish, yellowish or ochreous and dark ones, the whitish ones arranged as a band across base of tergite 2 and on sides of 3 and to a lesser extent on sides of rest, the more yellowish ones arranged across hind margin of white band, across base of 3 and more or less as bisinuate bands across hinder parts of rest of tergites, being concentrated as a central row of tergal patches and enclosing on each side

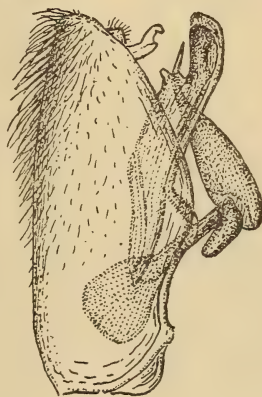
semilunar or crescent-like patches of dark scaling, with the yellowish scales in some specimens inclining more to whitish; scaling on venter mostly whitish, but segmental patches of dark or black scales present to a variable extent on sides and to a lesser extent down middle; scaling on legs mostly yellowish to whitish, but with fine dark intermixed ones, especially on upper aspect. *Wings* infuscated yellowish brownish to brown from about base of axillary lobe and middle or a little beyond middle of anal cell along anterior costal part, extending down first posterior cell, with usually two clear spots in apical part of marginal cell, clear areas in apical part of enclosed submarginal cell and in middle apical part of first posterior cell; apical and hinder parts more or less hyaline, but with faint fuscous borders of variable extent along posterior veins; conspicuous, rounded, largish spots or clouds on cross veins and bifurcations, the two at apex of discoidal cell sometimes confluent and also with a spot at end of second vein and smaller ones at end of apical veins and near ends of posterior veins of which the ones near end of vein between anal and axillary cells and near end of vein between second and third posterior cells and sometimes end of first posterior cell are usually more constant and larger; whitish praediscoidal spot large. *Antennae* with joint 3 elongate-conical, its style about or scarcely less than half length of joint, but sometimes distinctly less than half. *Hypopygium* of ♂ (text-fig. 238).

In the Transvaal and South African Museums.

Length of body: about 8–11 mm.

Length of wing: about 8–11 mm.

Locality: Eastern Cape Province and Eastern Karoo.



TEXT-FIG. 238. Side view of hypopygium of ♂ *Exoprosopa maculifera* Bezz.

Exoprosopa karooana n. sp.

Very closely resembles *maculifera*, but differs in having the face mostly black, only the apical part and buccal part yellowish; only posterior half of scutellum reddish; sides of only tergites 2 and 3 reddish and that less extensively than in *maculifera*; hind margins of tergites more narrowly reddish; legs darker reddish, with more dark scaling; pleurae darker and mesopleural parts with slightly more intermixed black hairs. *Wings* more darkly infuscated, the infuscation in anal and axillary cells more imperceptibly merging into hyaline apical part and not well marked off, more often without a distinct spot near end of anal cell and with fainter spots near ends of some of the posterior veins, and usually with only one clear spot at end of marginal cell. *Head* with the face in profile slightly more convex discally; style of antennal joint 3 distinctly less than half length of joint. *Hypopygium* of ♂ very similar to that of *maculifera* (cf. text-fig. 238), but with the

lateral struts more pointed and the broadened part of basal strut slightly narrower, relatively longer, less racket-shaped.

From 3 ♂♂ and 2 ♀♀ (types in the South African Museum and a paratype in the Transvaal Museum).

Length of body: about 8–9 mm.

Length of wing: about $8\frac{1}{2}$ – $9\frac{1}{2}$ mm.

Locality: Great Karoo: Victoria West Dist. (Mus. Exp., March 1931) (holotype); Murraysburg Dist. (Mus. Exp., March 1931) (allotype); Willowmore (Brauns, 15 Feb. 1923).

Exoprosopa connivens Bezz.

(Bezzi, p. 261, *The Bombyliidae of the Ethiopian Region*, 1924.)

Some ♂♂ and ♀♀ in the collections before me agree in most respects with Bezzi's description of *connivens* to which species they are referred. The species is characterized as follows:

Body black; entire face, excepting only a small black spot sometimes present on sides, postalar calli, greater part of scutellum, sides of tergites 2 and 3 broadly and to a certain extent rest of sides of abdomen narrowly, hind margins of tergites, broader hind margins of sternites or sometimes greater part of venter, pleurae to a variable extent and legs pale yellowish red. *Vestiture* with the hairs on head black, those in collar above and upper part of mesopleural tuft yellowish to deep golden yellowish; those on pleurae, in metapleural tuft, bases of tergites 1 and 2 laterally and on venter more whitish; hairs in collar behind, bristles on thorax and scutellum and hairs on sides of abdomen black; scaling on front part of body yellowish, those in streaks on sides of thorax more whitish and streaks on disc dark; scaling on abdomen above composed of whitish, yellowish and dark ones, the whitish ones in form of a basal band across tergite 2 and to a certain extent on sides of some of the others, the yellowish ones more numerous, arranged across apical part of 2, base of 3 and as bisinuate bands across hinder parts of the others, enclosing on each side a semilunar patch of dark scales; scaling on venter mostly whitish, but with segmental patches of black scaling laterally and down middle; scaling on legs mostly pale, inclining to whitish. *Wings* infuscated yellowish brownish to brown baso-anteriorly from just before middle of anal and axillary cells to beyond base of submarginal cross vein in marginal cell and to about or a little beyond middle of enclosed submarginal cell, with a broadish, hook-like extension posteriorly across apical vein of discoidal cell which sometimes tends to be resolved into two contiguous spots; large rounded spots and clouds on cross veins and bifurcations, with one large transverse spot near end of anal and axillary cells, which is confluent with large confluent spots at bases of third and fourth posterior cells, with roundish spots also near ends of posterior veins which are sometimes confluent with spots on

cross veins, and with a spot at end of second vein; two clear areas in apical part of marginal cell; apical vein of discoidal cell usually distinctly S-shaped. *Antennae* with joint 3 elongate-conical, its style short, only about a fourth or fifth length of joint itself. *Hypopygium* of ♂ (text-fig. 239, left) with the dorsal processes at base of projecting aedeagus on aedeagal apparatus rather long; basal strut racket-shaped.

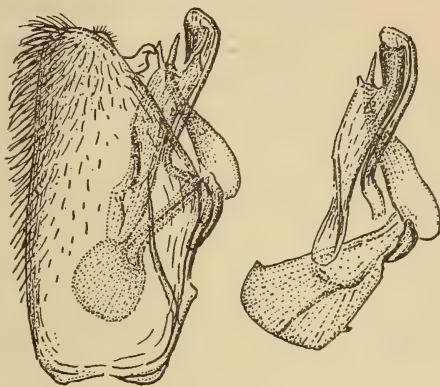
In the Transvaal and South African Museums.

Length of body: about $7\frac{1}{2}$ –10 mm.

Length of wing: about $7\frac{1}{2}$ –10 mm.

Locality: South-western Cape, South and South-eastern coastal regions and Southern Karoo.

A form of this species has the greater discal part of face black; slightly darker legs, due to more dark scaling; mesopleuron with distinct or more numerous intermixed black hairs; a large spot or cloud at end of vein between apical two cells; and with the apical vein of discoidal cell relatively shorter, less S-curved.



TEXT-FIG. 239. Left: side view of hypopygium of ♂ *Exoprosopa connivens* Bezz. Right: side view of detached aedeagal apparatus of hypopygium of ♂ *Exoprosopa maculosa* (Wied.).

Exoprosopa campestris n. sp.

A species very closely resembling some dark-faced forms of *connivens*, but distinguished from the latter in being slightly larger; in having a relatively broader head in front in ♀; more numerous black intermixed hairs on mesopleuron and sternopleuron, black hairs in anterior part of propleural tuft, prosternal part and in hinder part of metapleural tuft; more whitish than yellowish scales across tergites 3–7; more dark scaling on legs; apical and hinder parts of wings clearer, due to very much smaller isolated spots near ends of posterior veins, two separated spots on apical vein of discoidal cell, a smaller, less transverse spot near end of anal and axillary cells which does not extend into fourth posterior cell; and a larger, more S-shaped apical vein of discoidal cell.

From a ♀-specimen in the South African Museum.

Length of body: about 12 mm.

Length of wing: about $12\frac{1}{2}$ mm.

Locality: Moordenaars Karoo in the Laingsburg Div. (Mus. Exp., March 1937).

Exoprosopa maculosa (Wied.)

(Wiedemann, p. 282, *Aussereurop. Zweifl. Ins.*, i, 1828 (as *Anthrax*); Bezzi, p. 147, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 260, *The Bombyliidae of the Ethiopian Region*, 1924.)

This smallish species which is fairly common at the Cape and in the drier parts of South Africa is provisionally referred to *maculosa* as it agrees more or less with Wiedemann's short description. A specimen of this species in the South African Museum was also determined as such by Bezzi. As there are several species of *Exoprosopa* in South Africa with spotted wings the true identity of *maculosa* can only be established with certainty by a careful comparison with Wiedemann's original material. The species seems to be variable in regard to the size and extent of the spots and clouds in the wings and in the clear areas in apical and hinder parts and in the extent of black hairs which are intermixed with pale ones on pleurae. It is characterized as follows:

Body, including scutellum, mainly black or very dark blackish brown; face predominantly black, but with a yellowish apical margin and sides to a variable extent, sometimes almost entirely yellowish; abdomen with the sides of tergites 2 and 3 narrowly yellowish or reddish to a variable extent, more often entirely dark, the hind margins of tergites, especially in some coastal forms, narrowly reddish; venter with broader red hind margins, sometimes predominantly reddish in some ♂♂; legs pale yellowish reddish in inland forms, sometimes slightly darker in coastal forms. *Vestiture* with anterior part of collar above (excepting the whitish hairs on humeral tubercle), hairs in upper part of mesopleural tuft, hinder part of propleural tuft, front part or greater part of metapleural tuft, tuft basally on sides of tergites 1 and 2 and hairs on basal part of venter yellowish to straw-coloured yellowish; metapleural tuft and tuft on sides of tergite 1 sometimes more whitish; rest of hair and bristles on head, body above and below and on sides of abdomen black; hairs on pleurae in some forms with fewer intermixed black hairs; scaling on head in front greyish yellowish to yellowish; that on thorax above greyish whitish to greyish yellowish, with intervening streaks of darker scales; streak on sides of thorax more whitish or white; scaling on scutellum more yellowish; scaling on abdomen above composed of whitish, yellowish to ochreous and dark ones, the whitish ones arranged as a broadish, conspicuous band across base of tergite 2, sparsely across hinder part of 2, and as bisinuate bands across the rest, with the ochreous ones present across bases and hind margins of tergites 3-7 and the dark ones across hind margin of 1 and on each side of abdomen above in more or less semilunar patches; scaling on venter mostly whitish; that on legs greyish whitish to yellowish, dark above and apically on femora. *Wings* infuscated brownish yellowish to dark brownish or even darker from about basal half or a little less of axillary cell and along anterior half, with the apical part and hinder half more hyaline, but with large, rounded spots or clouds on cross veins and bifurcations and near ends of apical and posterior veins; these spots sometimes partly

confluent, producing a maculated or mottled effect and in some coastal forms also with fuscous borders along veins in addition to large spots; all forms with a large transverse spot (sometimes confluent with main infuscation) near end of anal and axillary cells and two large separated or confluent ones at apex of discoidal cell, with the spots near ends of posterior veins smaller and separated in Karoo forms. *Antennae* with joint 3 bulb-like or onion-shaped, its style long, at least half as long as, usually quite as long as, or even slightly longer than, joint itself. *Hypopygium* of ♂ with the aedeagal apparatus as shown (detached) in text-fig. 239; basal strut chopper-shaped.

In the British, Durban, South African and Transvaal Museums and in Commonwealth Institute.

Length of body: about 6–9 mm.

Length of wing: about $6\frac{1}{2}$ – $9\frac{1}{2}$ mm.

Locality: South-western and Eastern Cape, Namaqualand, Great Karoo, Eastern Karoo and Orange Free State.

Easily recognized by the mottled or spotted wings, bulb-shaped third antennal joint and dark scutellum. In its spotted wings it has some superficial resemblance to *polysticta* and forms of *recurrens* from both of which it may at once be distinguished by the entire absence of a projecting stump from lower vein of discoidal cell, the bulb-shaped third antennal joint with its long style, slender front legs and non-spiculate front tibiae, etc. From *connivens*, which has a similar spotted wing-pattern, it may also be distinguished by the shorter bulb-shaped third antennal joint and long style, dark scutellum, much reduced red on sides of abdomen, more numerous black hairs on pleurae.

Exoprosopa plerosticta n. sp.

This species, which on account of its almost straight apical vein of the discoidal cell should strictly speaking be included in the *Exoprosopa*-group, is for the sake of convenience appended here as a sort of appendix to the *maculosa*-section because the pattern in its wings is like that of *maculosa*. Its wing-pattern of spots and clouds is almost identical with that of *maculosa*. It, however, differs in the following respects:

The discoidal cell distinctly shorter, distinctly much less produced apically, more subtruncate, its apical vein very much shorter, not long and S-curved, only very feebly sinuous and more perpendicular to hind margin; second posterior cell less contorted, subtruncate basally; antennal joint 3 longer, more elongate-conical, not bulb-like, its style relatively shorter, distinctly less than half length of joint; upper part of mesopleural tuft entirely pale, without any dark hairs; streak of hair-like scales on sides of thorax more yellowish, not so conspicuously white; and hind half of scutellum and broadish hind margins of tergites reddish.

From 1 ♀ in the South African Museum.

Length of body: about $6\frac{1}{4}$ mm.

Length of wing: about $6\frac{1}{4}$ mm.

Locality: Southern Cape: Fore Bay at Mossel Bay (Barnard, Jan. 1931).

Exoprosopa tripartita-section

In this section may be placed some species of *Exoprosopa* which have a very characteristic and distinctive wing-pattern, more or less similar in both sexes, and consisting of a pale yellowish brownish or pale base and two cross bands separated by clearer or hyaline areas, the apical part being also clear or hyaline. The scaling on body below is usually markedly dense, and either strikingly snow-white or entirely whitish or pale.

Exoprosopa tripartita n. sp.

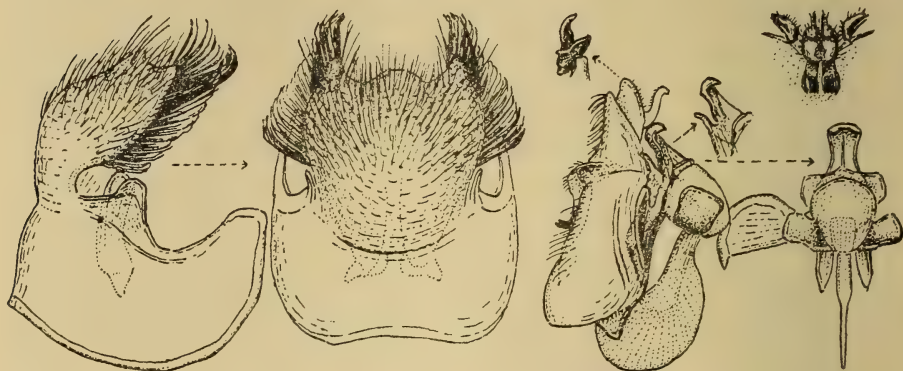
(Syn. = *hirtipes* Bezzi, nec Loew, p. 149, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 85, *Broteria* (Zool. Ser.), xx, 1922; Bezzi, in part, pp. 252 and 267, *The Bombyliidae of the Ethiopian Region*, 1924.)

Certain specimens of this species in the South African Museum and in the late Dr. Brauns's collection, now in the Transvaal Museum, were wrongly determined as *hirtipes* Lw. by Bezzi. Both from Bezzi's descriptive references to *hirtipes* and from the specimens which he determined as such, it is quite evident that he was unacquainted with Loew's *hirtipes* and did not compare the specimens carefully with Loew's good description and illustration of the wing. The true *hirtipes* (see under *inaequalipes*) is an entirely different species which itself is a synonym of Loew's *inaequalipes* (as I have shown in the '*Mem. do Museu Dr. Alvaro de Castro*, No. 1, 1950, p. 28') and in which the wing-pattern, though showing some superficial resemblance, nevertheless differs in being much darker, with the first cross band not extending across anal cell; apical vein of discoidal cell much shorter and nearly straight; face with yellowish or golden and not white scales; abdomen above with conspicuous transverse bands of white scaling; pleurae with deep golden or brownish golden scales and not with white ones; and the front legs stouter, shorter, and front tibiae spiculate.

The wing-pattern of the species under consideration has a greater resemblance to that of the Palaearctic *grandis* and *Pallasi* than to the true *hirtipes* (*inaequalipes*). The only South African species with which this species may be identical is *exigua* which Macquart described from the Cape in 1855 (p. 68 and tab. 3, fig. 1, *Dipt. Exot., Suppl.* v) and which according to Macquart's illustration of the wing has a similar, if not identical, wing-pattern. Macquart's illustration, however, differs markedly in the extent of the apical part of the infuscation and his description of the disposition of the red on the abdomen of the ♀ is also different. In view of these differences this species is here provisionally described as new with the following characters:

Body black above; slightly more than front half of frons, base and sides of face and sometimes, with the exception of a smallish black discal spot, entire face, greater part of scutellum, hind margins of tergites, extreme side of tergite 2 in ♀ and sides of abdomen in ♂ very broadly or the entire abdomen (except a broad, triangular, black, discal patch, extending to tergite 4), the sutural parts of pleurae to a variable extent and the broad hind margins of sternites, or in some ♂♂ entire venter, pale yellowish red or salmon pinkish; legs with the femora dark or blackish and the tibiae pale yellowish. *Vestiture* with relatively sparse hairs on head in front, those on basal half of frons or sometimes farther forwards and the sparse depressed ones on disc of face and apical tuft black, the rest of the scales on head in front and to a certain extent on antennae below gleaming sericeous yellowish or whitish; collar above and upper part of mesopleural tuft yellowish to deep yellowish; hairs on lower parts of pleurae, metapleurae, sides of tergite 1 and greater part of 2 and on venter white or whitish; coxal bristles whitish, yellowish or reddish, with sometimes a few dark ones; prealar, postalar and scutellar bristles and rather sparse hairs on sides of abdomen black; those on sides of abdomen in ♂ with more numerous pale one intermixed and mostly pale on last tergite; scaling on body dense, that on head in front pale yellowish discally, snow-white or cretaceous whitish on sides; that behind eyes very dense, snow-white; scaling on body above mostly yellowish whitish, yellowish to ochreous yellowish, the streaks on sides of thorax whitish; abdomen above without distinct or conspicuous white bands, only the scaling on sides of tergite 1 and extreme sides below of the others and those on last tergite whitish, those across basal parts of tergites slightly paler yellowish than more ochreous ones across hinder parts, with some dark scales across hind margins of tergites 2 and 3 and sometimes 4, more so in ♂; scaling on mesopleuron and sternopleuron and on coxae dense, gleaming snow-white; that on venter, especially base, very dense and conspicuously snow-white; scaling on legs mainly snow-whitish, becoming more yellowish on outer apical aspect of femora and on tibiae. *Wings* (pl. iii, fig. 1) with a characteristic yellowish brown pattern, the base, costal cell, basal half of marginal cell and first basal cell more yellowish, usually with a distinct spot at base of submarginal cross vein and a fainter, less constant one on base of second submarginal cell; squamae yellowish, with whitish fringe; halteres pale yellowish-knobbed. *Head* with the interocular space and frons relatively broad, the former quite or nearly as broad as length of antennal joint 3 plus style; antennal joint 3 elongate-conical, its style about or a little less than half length of joint; proboscis finely spinulate below, projecting only slightly or not at all. *Last sternite* of ♂ (text-fig. 240, left-hand figures) entirely different from that of other species of *Exoprosopa*, slightly constricted medially; the apical part shield-like convex dorsally, its apical angles distinct and prominent, its lateral margins with a brush or comb or fan of stiff bristles and with a bundle of dense stiff bristles, which resemble a stout spine, on each side apically below apical angle. *Hypopygium* of ♂ (text-fig. 240, right) with the basal parts slightly depressed medially, but with two raised

bosses medially, flanked on each side by a carinate ridge ending posteriorly in a rod-like process which is bent upwards apically, ending in modified, short, stout, flattened, black, spine-like bristles (on side in third figure from left and upper one on extreme right); beaked apical joints contorted, deeply excavate above, their outer side much raised and carinate, the beak slender, flattened



TEXT-FIG. 240. Genital structures of ♂ of *Exoprosopa tripartita* n. sp. Left to right: Side view and ventral view of last sternite and side view of hypopygium and ventral view of detached aedeagal apparatus, apical view of beaked apical joint, a separate side view of apical part of aedeagal apparatus and on extreme right above dorsal view of middle raised structures on hypopygium.

and curved upwards; aedeagal apparatus (text-fig. 240, on right) with a ventral aedeagal process, without any spines dorsally at base of projecting apex of aedeagus proper; lateral struts broad; basal strut chopper-shaped.

From 29 ♂♂ and 47 ♀♀ (types in the South African Museum and paratypes in the British and Transvaal Museums.)

Length of body: about $8\frac{1}{2}$ – $15\frac{1}{2}$ mm.

Length of wing: about 9– $16\frac{1}{2}$ mm.

Locality: Koup Karoo: Merweville Dist. (Zinn, Jan.–Feb. 1947) (types); Merweville (Zinn, Feb. 1941); Laingsburg Div. (Mus. Exp., Feb. 1938); Moordenaars Karoo in Laingsburg Div. (Mus. Exp., March 1937); Rooinek Pass in Laingsburg Div. (Hesse and Zinn, Jan. 1949); Voëlfontein in Prince Albert Div. (Hesse, March–April, 1929); Rietvlei on the Nieuveld Escarpment in the Beaufort West Div. (Hesse and Zinn, Jan. 1949). Tankwa Karoo: Ceres-Sutherland Div. (Hesse and Zinn, Jan. 1949); Sutherland Dist. (Zinn, Jan. 1941). South-east Cape: Dunbrody (O'Neil, 1903). Griqualand West: Windsorton (Brauns, 20 Dec. 1920). South-West Africa: Aus (Turner, Jan. 1930); Windhoek (Wilde); Kaross (Mus. Exp., Feb. 1925); Warmbad (Mus. Exp., Feb. 1925); Otjikondo (Jan. 1925); Kamanyab (Mus. Exp., March 1925); Okahandja (Turner, 1–12 Jan. 1928).

Exoprosopa simillima n. sp.

(Hesse, note under *hirtipes*, p. 177, *Ann. Transv. Mus.*, xvii, 1936.)

One ♂-specimen, wrongly determined by Bezzi as *hirtipes* Lw., 8 other ♂♂ and 17 ♀♀ in the collections before me constitute a distinct species which is very near the preceding species *tripartita* and entirely different from the true *hirtipes* of Loew. There is also little doubt that most or all of the South-east and East African specimens recorded by Bezzi in his revision (p. 267, *The Bombyliidae of the Ethiopian Region*, 1924) and identified by him as *hirtipes* probably belong to this species now under consideration. The specimen from Durban which Ricardo (p. 99, *Ann. Mag. Nat. Hist.*, (7), vii, 1901) identified as *hirtipes* and to which Bezzi also alludes in his revision probably also belongs to this species and not to Loew's species.

This species may almost be considered as a distinct East African variety of *tripartita*. It however appears to differ constantly in the following respects:

Body with narrower reddish hind margins on abdomen, only the sides red in ♂, with the entire frons and greater discal part or even sides of face and usually the first two antennal joints black; tibiae on the whole darker; face itself relatively shorter; antennal joint 3 relatively shorter, its style usually much more than half length of joint, sometimes nearly as long as joint. *Vestiture* with most or all the hairs on frons and discal part of face dark; black scales across hind margins of tergites 2 and 3 and to a lesser extent also across other tergites distinctly more numerous, more extensive and more conspicuous; whitish scales on last tergite, especially in ♂, whiter, denser, more conspicuous. *Wings* with a similar pattern, but darker, even more blackish brown; clear area in middle distinctly more interrupted by a large cloud-like infuscation or cloud-like spot on the vein between third and fourth posterior cells, which in some specimens often coalesces with cloud at base of second posterior cell; spots at bases of two apical cells on the whole more constantly distinct and larger. *Last sternite* in ♂ narrower, with relatively fewer hairs apically above and with the prong-like or produced apical angles more sharply pointed or acute apically than in *tripartita*. *Hypopygium* of ♂ almost identical and scarcely distinguishable; apical angles of the basal parts however blunter, less sharply produced; beak-like process or prong of beaked apical joints slightly shorter and less curved; lateral apical and downwardly-projecting angles of aedeagal process less prominent or produced than in *tripartita*.

Types in the South African Museum and paratypes in the Durban and Transvaal Museums.

Length of body: about $6\frac{1}{2}$ – $12\frac{1}{2}$ mm.

Length of wing: about 7 – $12\frac{1}{3}$ mm.

Locality: Portuguese East Africa: Maputo (Travassos Dias, 17 March 1952 (holotype), 17 April 1952 (allotype), and 21 April 1952); Inhaca (L.M.). Zululand: Manguzi River near Maputo (Bell-Marley, Nov.–Dec. 1945); Hluhluwe Reserve (Zumpt, 1950). Bechuanaland: Kaotwe (Vernay-Lang,

Kal. Exp., 8-12 April 1930); Damara Pan (Vernay-Lang, Kal. Exp., 15-21 April 1930). South-West Africa: Nomtele (Barnard, Feb. 1921); Nuragas (Lightfoot, Jan. 1919).

This species replaces *tripartita* of the Karoo and western part of Southern Africa in South-east and East Africa, overlapping with the latter in northern Bechuanaland and northern parts of South-West Africa. Like *tripartita* it differs from *inaequalipes* (*hirtipes*) Lw. in the slightly different wing-pattern, presence of pale or whitish hair on pleurae, dense white scaling on pleurae, less distinct white bands on abdomen, absence of distinct spicules on front tibiae, etc.

Exoprosopa mozambica n. sp.

A large and striking species with a type of wing-pattern which is very similar to that of *tripartita*. From this latter species it however differs in being very much larger and in the following respects:

Body with the entire head, excepting only dark vertex, middle part below and dark eyes; entirely yellowish red or reddish; sides of thorax above, entire scutellum, entire or greater part of pleurae, tergites 2 and 3 very broadly on sides, very broad hind margins of tergites and in ♂, or even some ♀♀, the entire abdomen (excepting only black, discal, triangular patch on tergite 2 and sometimes also on 3 and 4), and the legs reddish. *Vestiture* with more uniformly yellowish or sericeous yellowish or pale yellowish hairs in collar and on pleurae; scaling and hairs on lower parts of pleurae not conspicuously and contrastingly chalky white as in *tripartita*; scaling on venter, though also white or whitish, less densely and contrastingly snow-white; pale scaling in transverse bands on abdomen above more whitish or white, not predominantly yellowish or ochreous yellowish, and with more distinct and denser black ones in broader bands discally across hind margins of tergites 2-4. *Wings* (pl. iii, fig. 2) with the infuscated parts paler yellowish brownish, the veins more yellowish, with the clearer band across second basal, anal and axillary cells less hyaline, more subopaquely yellowish whitish; first dark band much broader and also broadly reaching hind margin; apical margin of second dark band more zigzag, and the bases of apical two cells without spots; axillary lobe much broader, especially in ♂, in which sex it is broad and subrectangularly rounded at its base, distinctly more than twice width of anal cell; lower vein of discoidal cell more bent outwards, the cell thus much broader apically. *Head* with the style of antennal joint 3 very much longer than in *tripartita*, in ♂ at least as long as or even a little longer than joint; proboscis relatively much stouter. *Hypopygium* of ♂ (text-fig. 241) with the beak of apical joints not indented or incised apically; aedeagal process recurved apically and bluntly bidentate apically; lateral struts well developed; basal strut broad, shaped as shown in side view.

From 10 ♂♂ and 22 ♀♀ (types in the South African Museum and a paratype in the Natal Museum).

Length of body: about $15\frac{1}{2}$ -22 mm.

Length of wing: about 17-23 mm.

Locality: Portuguese East Africa: Maputo (Travassos Dias, 17 March 1952, 21 April 1952 (types) and 18 March 1953); Moamba (T. Dias, 10 March 1953). Zululand: Empangeni (H. v. P. B., Feb. 1906).

Exoprosopa didesma n. sp.

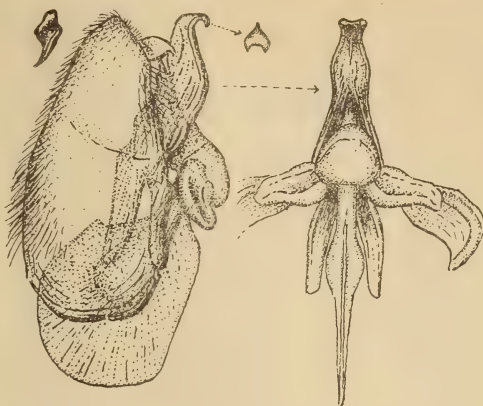
Still another, relatively longer-winged, species belonging to the *tripartita*-section, characterized by a *Litorrhynchus*-type of wing-pattern in which the base, anterior costal part and two broadish cross bands are infuscated, leaving the apical part and two broadish indentations, separating the dark bands, clear or hyaline. It is, however, nearer *mozambica* than *tripartita*. With the former it agrees in having the infuscated parts in wings paler, more yellowish or brownish, the bases of second basal and anal and axillary cells not or scarcely infuscated, a much broader first dark cross band, a second dark band which is also broader and which also reaches the hind margin; creamy whitish or paler yellowish scaling on body above; whitish scaling on abdomen above which is present in even more conspicuous transverse bands separated by much denser dark scaling; less conspicuous, less dense, white scaling on body below than in *tripartita*, that on sides of face and front half of pleurae yellowish as in *mozambica*, not snow-white as in *tripartita*; and also the pale legs. It, however, differs from *mozambica* in having the head behind eyes black, not yellowish; no reddish at base of thorax; almost entirely dark pleurae; no broad red marks or spots on sides of tergites 2 and 3 in ♀ at least; no broad red hind margins to tergites; more conspicuous whitish or creamy transverse bands on abdomen above which are separated by even more extensive and denser, dark scaling; relatively longer or rather markedly elongate wings which are less pointed apically and in which the second dark cross band is distinctly very much broader, more extensive, occupying much more of the apical parts of first and second posterior cells; a relatively longer discoidal cell; middle cross vein more distinctly before middle of discoidal cell; and the darker, more brownish femora.

From a ♀ in the South African Museum.

Length of body: about 16½ mm.

Length of wing: about 21 mm.

Locality: Eastern Transvaal: Newington (Fenoulhet, 18 March 1912).



TEXT-FIG. 241. Side view of hypopygium, apical views of right beaked apical joint and apex of aedeagal process and ventral view of detached aedeagal apparatus of ♂ *Exoprosopa mozambica* n. sp.

Exoprosopa perpulchra Bezz.

(Bezzi, p. 159, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 310 and fig. 32, *The Bombyliidae of the Ethiopian Region*, 1924.)

A very characteristic species easily recognized by its distinctive wing-pattern:

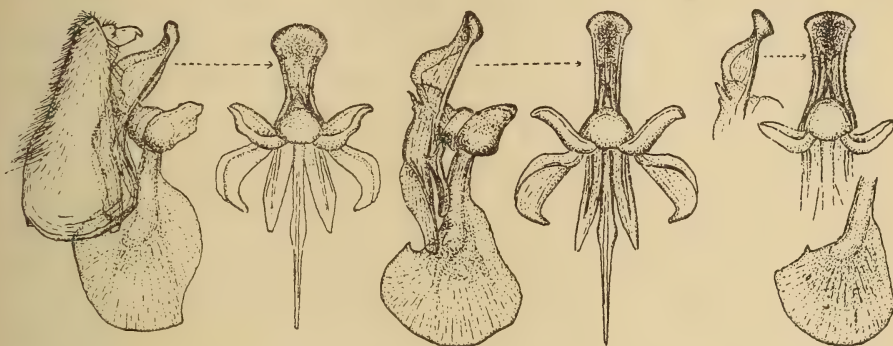
Body mostly black; anterior part of frons to a variable extent, sides of face broadly or sometimes entire or greater part of face, more than hind half of scutellum, broadish sides of abdomen in ♂, hind margins of tergites in ♀, broader on sides, broad hind margins of sternites in ♀ and greater part or entire venter in ♂ yellowish or yellowish red; legs very dark reddish brown to blackish. *Vestiture* with the hairs on frons and disc of face black, yellowish on sides of face; scaling on head in front dense, yellow to golden yellow; that behind eye-margins silvery; collar above, humeral tuft, upper part of mesopleural tuft and upper part of metapleural tuft yellowish to deep yellowish; hairs on lower parts of pleurae and metapleural tuft whitish; plumula, tuft at base of abdomen, coxal bristles and hairs on venter also whitish; fine hairs on thorax above, some notopleural ones, thoracic and scutellar bristles, some hairs on sides of tergites apically and most of those across last tergite black; rest of hairs on sides of abdomen golden; scaling on body above mainly golden to ochreous yellowish, without any white ones, but with some black scaling discally, mostly discally across hind margins of tergites 2-5; scaling on pleurae and coxae fairly dense, snow-whitish and with snow-whitish ones also on venter; scaling on legs whitish, but yellowish on outer surfaces of femora. *Wings* hyaline, with the base and costal cell yellowish and two broadish brownish or blackish brown cross bands in middle, the first one extending from third vein broadly across apical half of first basal cell, base of discoidal cell, apical part of second basal cell and across apical halves of anal and axillary cells, the second one occupying and extending broadly from middle part of marginal cell (between base of second vein and a point opposite end of false vein) across more than basal half of enclosed submarginal cell, middle part of first posterior cell into basal part or half of second posterior cell and usually not reaching hind margin; these two dark bands separated by a clear indentation in middle, occupying middle of discoidal cell and extending into base of first posterior cell and with the second dark band in ♂ much narrower than in ♀, becoming very much narrowed posteriorly and fading out or ceasing in extreme base of second posterior cell; discoidal cell not much broadened apically, not much produced apically, its apical vein short, straight, substraight or only feebly S-curved; middle cross vein a little before middle of discoidal cell; second posterior cell not much contorted, its sides almost parallel; halteres pale. *Head* with antennal joint 3 conical, its style in ♂ quite half or even more than half length of joint, in ♀ half or sometimes less than half length of joint. *Legs* slender, the anterior ones even more slender; anterior tibiae non-spiculate; front tarsi long, finely haired. *Hypopygium* of ♂ (text-fig. 242, left) with the basal parts rather slender, narrowed apically; aedeagal process spathulately broadened apically.

In the South African and Transvaal Museums.

Length of body: about $11-12\frac{1}{2}$ mm.

Length of wing: about $11-12\frac{1}{2}$ mm.

Locality: Southern Rhodesia and South-West Africa and according to Bezzi also Nyasaland and North-west Rhodesia.



TEXT-FIG. 242. Left: Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa perpulchra* Bezz. Middle: Side and ventral views of detached aedeagal apparatus of ♂ *Exoprosopa nova* Ric. Right: Side and ventral views of anterior part of aedeagal apparatus and side view of basal strut of hypopygium of ♂ *Exoprosopa nuragasana* n. sp.

Its wing-pattern cannot be confused with that of *tripartita* and *mozambica* which also have a broad hyaline band across second basal, anal and axillary cells and two cross bands in middle of wing. In these two species the base is also dark, the two dark bands are more irregular and nearer together and the clear indentation separating them being narrower and not extending into base of first posterior cell. Moreover the discoidal cell of the latter two species is entirely differently shaped, with a long and S-curved apical vein. Face and body below in *tripartita* are more densely covered with chalky white scaling. The interocular space on vertex is broader in *tripartita*.

Exoprosopa nova Ric.

(Ricardo, p. 101, *Ann. Mag. Nat. Hist.*, (7), xvii, 1901; Bezzi, p. 314, *The Bombyliidae of the Ethiopian Region*, 1924.)

Certain specimens from South-eastern Africa in the collections before me agree in the few characters given by Ricardo in her description of *nova*. Ricardo's description as well as Bezzi's short descriptive references to this species are, however, so vague and unsatisfactory that only an examination of the original type specimens will confirm the diagnosis beyond doubt. The specimens before me are characterized as follows:

Body mainly black; at least anterior half of frons, but sometimes also medial part posteriorly and entire face yellowish or yellowish reddish; greater part of scutellum, hind margins of all the tergites, sides of 2 and 3 and extreme sides of the others in ♀, the sides of abdomen broadly and entire tergites 6 and 7 in ♂ and greater part or entire venter in both sexes reddish; antennae and legs dark or black. *Vestiture* with the hairs on greater part of frons, on antennae and on face apically or sparsely on disc of face black; those on front part of frons, some intermixed ones on antennae below in some ♀♀ and on sides of face yellowish or pale golden; scaling on head in front mainly golden yellowish, becoming white on sides of face; scaling behind eyes yellowish in upper half, more whitish or silvery in lower half; hairs on thorax above, some notopleural hairs, thoracic and scutellar bristles and hairs on sides of abdomen, on sides apically of tergites 2, 3 and 4 and posteriorly to apex and densely across hind margin of last tergite black; collar above and upper part of mesopleural tuft yellowish to deep or even ochreous yellowish; hairs on lower anterior part of pleurae more creamy yellowish and those on rest of pleurae, metapleural tuft, plumula, sides of abdomen basally and on venter white; bristly hairs on front and middle coxae and sometimes some hairs on extreme inflexed sides of abdomen above sometimes slightly more yellowish; scaling on thorax and scutellum above mainly deep yellowish to ochreous yellowish; that on abdomen above composed of white and black ones in ♂ and mainly of yellowish or ochreous yellowish, whitish and black ones in ♀, the white ones in ♂ arranged as broad bands across middle of tergites 2 and 3, on extreme sides of 4 and 5 and across 6 and 7, whereas the black ones occur across bases and apical margins of 2 and 3, across almost entire 4 and 5 and hind margins of 6 and 7; in ♀ yellowish ones replace white ones of ♂, but also across bases of 4 and 5, with white ones only on extreme sides of tergites and sometimes also across 6 and 7; rather dense, hair-like scaling on pleurae, scaling on coxae and dense scaling on venter conspicuously chalky whitish; scaling on legs white on inner or hinder surfaces of femora, more yellowish on outer surfaces, black on tibiae. *Wings* greyish hyaline, the base, costal cell and basal half of first basal cell yellowish, with a broadish brownish to dark brownish infuscation or band extending obliquely across, occupying broad middle part of marginal cell up to level of end of false vein in costal cell, more than basal half of enclosed submarginal cell, basal third (♂) and basal half (♀) of first posterior cell, basal half of discoidal cell, base of third posterior cell, apical part of second basal cell, more or less basal half of fourth posterior cell and slightly less than apical halves of anal and axillary cells; in ♀ also with a more or less distinct and constant second, but narrower, band across apical part of discoidal cell which does reach the hind border and which is absent in ♂ or only very feebly or faintly indicated to a variable extent as a faint cloud at base of second posterior cell; greater part of second basal cell and more than basal halves of anal and axillary cells in both sexes always clear or even more hyaline than rest of clear parts; middle cross vein at about middle of discoidal cell; the latter slightly broadened apically, its lower vein roundly

bent outwards, its apical vein feebly S-curved, sometimes almost straight; basal comb well developed, yellowish-scaled; squamae yellowish, yellowish to ochreous-fringed; knobs of halteres yellowish. *Antennae* with joint 3 conical, its style long, about as long as joint in ♂ and about two-thirds its length in ♀. *Legs* with the front ones slender; front tibiae non-spiculate and front tarsi finely hairy. *Hypopygium* of ♂ (cf. preceding text-fig. 242, middle) like that of *perpulchra* (left), but aedeagal process narrower, less broadened apically and lateral struts longer, narrower.

In the South African Museum.

Length of body: about $12\frac{1}{2}$ – $14\frac{1}{2}$ mm.

Length of wing: about $12\frac{1}{2}$ – $14\frac{1}{2}$ mm.

Locality: Zululand and Portuguese East Africa.

From the preceding species it may at once be distinguished by the much narrower and more indistinct second dark band in wings, less dilated discoidal cell, broader bands of black scaling on abdomen above, white transverse bands in ♂, more red on sides of abdomen in both sexes, reddish venter, much longer style, etc.

Exoprosopa major-section

Representatives of this section very closely resemble the *Exoprosopa tripartita*-section as far as the wing-pattern is concerned. They differ, however, in having the first dark band much fainter, more diffuse, much narrower posteriorly, not extending beyond basal cross veins of third and fourth posterior cells, thus leaving apical parts of anal and axillary cells entirely clear and even in ♀♀ without a distinct second dark band across apical part of discoidal cell, at most only with a slight infuscation along apical cross vein of discoidal cell. There are also more dark scaling in streaks on thorax above.

Exoprosopa nuragasana n. sp.

This species of which two specimens in the South African Museum were wrongly identified as *inaequalipes* Lw. by Bezzi, is very similar to the South-east African species *nova* Ric. of which it may be the South-West African equivalent. On the other hand it also appears to be very near the Tropical West African *robertii* of Macquart. From *nova* it differs in having the oblique dark or brownish band in wings fainter, more diffuse, much narrower posteriorly, shorter, not extending beyond basal cross veins of third and fourth posterior cells where it is evident as two dark spots and thus leaving the anal and axillary cells entirely clear apically; in having even in ♀ no abbreviated second dark band across apical part of discoidal cell, but only a faint or indistinct, isolated infuscation or cloudiness along apical vein of this latter cell, much like that of ♂-*nova*, but in this case equally present in both sexes; a darker more brownish than yellowish wing-base and a whitish and dark-scaled, not yellowish, basal comb; scaling on head in front gleaming more whitish and disc of face with more extensive

black hairs; pale scaling on thorax above more greyish whitish and separated by distinct streaks of dark ones and streak on sides more whitish; bands of pale scaling across tergites similarly arranged, but in both sexes entirely white as in ♂-*nova*; hairs in collar above and upper part of mesopleural tuft paler yellowish or even more straw-coloured yellowish; pale scaling on legs more white or whitish and that on outer apical halves of femora more black like that on tibiae and hairs on front and middle femora dark, not pale; a relatively shorter antennal style which is less than two-thirds length of joint in ♀ and not as long as joint in ♂; and in having the aedeagal process (cf. preceding text-fig. 242, extreme right) of hypopygium relatively broader, more angular on sides apically and finely serrate on sides, smaller lateral struts and differently shaped basal strut. From *robertii*, according to Macquart's very short description and figure of wing (p. 44 and tab. 17, fig. 9, *Dipt. Exot.*, ii, 1840) and Bezzi's supplementary descriptive notes (p. 313, *The Bombyliidae of the Ethiopian Region*, 1924), it appears to differ in having the dark oblique band in wings less extensive, occupying less of basal part of first posterior cell and entirely absent in anal cell; a first posterior cell which is less narrowed apically; and a much longer antennal style.

From 5 ♂♂ and 4 ♀♀ (types in the South African Museum).

Length of body: about 14–15 mm.

Length of wing: about $14\frac{1}{2}$ –16 mm.

Locality: South-West Africa: Nuragas (not 'Narugas' as on label) (Lightfoot, Jan. 1919) (types); Otjituo (Tucker, Jan. 1920); Ondongua (Barnard, Feb. 1921).

Exoprosopa major Ric.

(Ricardo, p. 100, *Ann. Mag. Nat. Hist.*, vii (7), 1901; Bezzi, p. 646, *Trans. Ent. Soc. Lond.*, 1911 (1912); Bezzi, pp. 283 and 324, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Syn. = *inaequalipes* Bezzi, nec Loew, p. 160, *Ann. S. Afr. Mus.*, xviii, 1921.)

There appears to be some confusion as to the identity of this species which Ricardo originally described from Nyasaland. Bezzi, though defining it in the key in his monograph in 1921, confused it with *inaequalipes* Lw., a species which he was unable to identify correctly and which Loew himself also described under another name as *hirtipes*. Ricardo's description itself does not help much to determine the species. The specimens before me, however, agree more or less with her description and one specimen from Dar-es-Salaam in the National Museum of Southern Rhodesia was identified as such by Brunnetti. It is also quite possible, as Bezzi himself suspected, that Macquart's species *costalis* (p. 107, *Dipt. Exot., Suppl.* i, 1846) may prove to be identical with *major*. If this proves to be the case *major* itself will have to be considered as a synonym of *costalis*. It is, however, impossible to identify *costalis* from Macquart's inade-

quate description. The species, as based on material in the collections before me, is characterized as follows:

Body and legs mainly black; at least front half of frons and entire face yellowish; basal part of frons usually more brownish or reddish brown; postalar calli, greater part of scutellum, hind margins of tergites, sides of 2 and 3 broadly, more so in ♂ and in ♂ also entire sides of abdomen and venter, and broadish hind margins of sternites in ♀ reddish. *Vestiture* with the hairs on head in front and disc of face black, those on sides of face yellowish; scaling on head in front gleaming yellowish, distinctly more whitish on sides of face, more silvery behind eyes in lower half; hairs on disc of thorax, on hinder part of humeral tubercle, on notopleurae, thoracic and scutellar bristles, hairs on sides apically of tergites 2-6 or at least 2-4, tuft across hind margin of last tergite and some coxal bristles black; collar above, upper part of mesopleural tuft and to a certain extent metapleural tuft yellowish; hairs on rest of pleurae, base of abdomen and alternating with dark tufts or intermixed with dark ones on sides of abdomen and hairs on venter whitish; scaling on thorax above mainly yellowish, black basally, but yellowish on sides and posteriorly on scutellum; scaling on abdomen above in form of broadish pale yellowish or creamy yellowish bands across tergite 2 and bases of 3-6 and entire 7, these bands broader on sides and there also with slightly paler, even more whitish scales; pale bands separated by bands of black scaling across hinder parts or hind margins of tergites; scaling on body below and venter whitish or very pale creamy whitish; that on legs whitish above basally and on inner sides of femora, more yellowish on outer sides, but with some dark ones also apically. *Wings* like those of *stannusi*, but relatively broader, with the anterior costal infuscation fainter, paler, more yellowish or reddish yellowish, the costal and first basal cells more yellowish, the base also more yellowish, the infuscation also less extensive, apically ending some distance away from base of submarginal cross vein, but with similar spot-like infuscations on cross vein in middle, though the faint infuscation across basal half of discoidal cell is even fainter, sometimes scarcely perceptible; squamae yellowish brownish, its fringe yellowish to ochreous yellowish; knobs of halteres pale yellowish above. *Head* with antennal joint 3 conical, its style long, quite $\frac{2}{3}$ - $\frac{3}{4}$ length, or sometimes even subequal to length, of joint; proboscis stoutish, not or scarcely projecting beyond buccal cavity. *Legs* with the front tibiae non-spiculate; front tarsi shortly pilose. *Hypopygium* of ♂ resembling that of *stannusi*, but with longer and denser hairs on basal parts; aedeagal process similarly shaped, but its apical part distinctly very much broader, its sides below not angularly prominent or bluntly spine-like, its neck part also broadened, the aedeagal process more like that of *heros* (cf. text-fig. 251), but with its dorsal humped part more like that of *perpulchra* (cf. text-fig. 242) and *stannusi* (cf. text-fig. 243); basal strut well developed, broad.

In the Rhodesian, Durban and South African Museums and Agricultural Dept. of Southern Rhodesia.

Length of body: about 15–17½ mm.

Length of wing: about 15½–18 mm.

Locality: Southern Rhodesia, Zululand, Portuguese East Africa and Tanganyika.

Easily recognized by the bee-like pale or creamy yellowish, regular bands across abdomen and the *nuragasana* or *stannusi*-like wing-pattern and further distinguished from *stannusi* by the black or dark legs, relatively longer antennal style and less whitish scaling on sides of tergites.

Exoprosopa albata Bezz.

(Bezzi, p. 323, *The Bombyliidae of the Ethiopian Region*, 1924.)

Some ♂♂ and ♀♀ in the collections before me agree in most respects with Bezzi's description of *albata* which he originally based on material from Portuguese East Africa and I have no hesitation in referring them to this striking species. This species may almost be considered as a special form of *major*. It, however, differs from the latter in the following respects: The abdomen in the ♀♀ is entirely or more extensively black above and the venter has much narrower reddish hind margins; the red on sides of abdomen in ♂♂ is also less extensive; pale bands across abdomen above composed of very conspicuous and striking white scales and not of yellowish ones as in *major*; hairs on lower parts of pleurae also whiter; infusion in anterior costal part of wings darker even in ♀♀, more distinct, slightly more extensive, with a more distinct though faint extension obliquely across basal half of discoidal cell to bases of third and fourth posterior cells, and with the basal parts of first posterior and enclosed submarginal cells distinctly more extensively darkened; halteres entirely dark; and the legs on the whole darker, with darker or fewer pale scales.

In both the wings and other respects it also closely resembles *nuragasana*, from which it, however, differs in having basal half of first basal cell and costal cell less pale yellowish and no faint spot-like infuscations at bases of apical two cells; an entirely black abdomen above in ♀♀; deeper yellowish hair in collar, upper part of mesopleural tuft and metapleural tuft; and entirely dark halteres. *Hypopygium* of ♂ resembling that of *stannusi* (cf. text-fig. 243) but with the basal part of aedeagal process not so narrowed, more like that of *perpulchra* (text-fig. 242); basal strut more or less in between those of *nova* and *nuragasana* (cf. text-fig. 242, middle and right). It also resembles that of *major*, but differs in having a much shorter neck-region to basal parts, a shorter aedeagal process which is distinctly less broadly and laterally dilated in apical part, and a differently shaped basal strut.

In the Durban and South African Museums.

Length of body: about 14½–16½ mm.

Length of wing: about 14–17 mm.

Locality: Zululand: Manguzi River near Maputa (Bell-Marley, Nov.-Dec. 1945); Imyalazi River (Bell-Marley, 26 Dec. 1928); Hluhluwe Reserve (Zumpt, 18 Jan. 1950).

Exoprosopa stannusi Bezz.

(Bezzi, p. 647 and pl. L, fig. 23, *Trans. Ent. Soc. Lond.*, 1911 (1912);

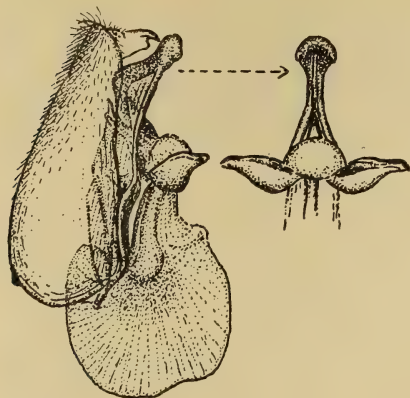
Bezzi, p. 159, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 282 and 320,

The Bombyliidae of the Ethiopian Region, 1924).

An easily recognizable species, characterized as follows:

Body slightly tapering posteriorly, but not more than in *major* and *albata*, mostly black; front half of frons, entire face, lower part of head and margin behind eyes to a variable extent, sometimes humeral calli, postalar calli, entire scutellum, very broad sides of abdomen in ♂♂ (excepting only tergite 1 and a central row of black triangular spots on tergites 2-5), less broad sides of abdomen in ♀♀ to a variable extent (excepting broad black discal parts on tergites 2-5 or 6), infusions on pleurae, entire venter in both sexes or base and broad hind margins in some ♀♀ to a variable extent, and the legs in both sexes pale yellowish red to reddish. *Vestiture* with hairs on basal and medial part of frons black, the rest on frons and face and below antennae usually yellowish, but in some forms with black hairs also on middle part of face to a variable extent, the tuft at apex black; collar above, mesopleural tuft and hair on pleurae yellowish to straw-coloured yellowish, becoming paler or white below; hairs in metapleural tuft and base of abdomen whitish; that on sides of tergite 2 and bases of 3 and 4 also pale or whitish and often with intermixed yellowish bristly hairs on rest of abdomen; tufts on hind corners of 2-4 and along rest of abdomen as well as posterior fringe black; fine hairs on thorax and abdomen and bristles on thorax black; scaling on thorax and scutellum mainly greyish yellowish or whitish; that on abdomen above dense, yellowish, more whitish on sides, but those across hind margins of tergites 2-5 black, the bands more confined to disc on 4 and 5; hairs and scales on venter mainly whitish; scaling on legs mostly yellowish, but in some forms, especially ♀♀, with that on outer apical parts or halves of middle and hind femora and that on hind tibiae dark. *Wings* narrowish, greyish hyaline, with almost anterior half to level of submarginal cross vein infuscated dark reddish brown to dark blackish brown, the anal and axillary cells clear and second basal cell also clear or less infused than anterior part, the basal part or half of discoidal cell and base of first posterior cell included in anterior infuscation; basal cross veins of fourth and third posterior cells and middle cross vein with distinct and conspicuous spot-like infusions and also with fainter spots at base of second posterior cell and apex of discoidal cell and also at bases of apical two cells; discoidal cell depressed above at level of middle cross vein, subacutely rounded apically, the curve of its lower vein more or less continuous with its apical cross vein. *Antennae* with joint 3 elongate-conical, its style stout, long, at least half as long as joint, usually longer than half. *Legs*

with numerous spines on middle and hind femora and with a row of dense spicules on outer upper aspect of hind tibiae. *Hypopygium* of ♂ (text-fig. 243) with the basal parts narrowish apically;



TEXT-FIG. 243. Side view of hypopygium and ventral view of aedeagal process of ♂ *Exoprosopa stannusi* Bezz.

broadened apically, slightly angularly prominent on each side below broadened apical part; lateral struts broad, shoe-horn-shaped; basal strut strongly developed and broad.

In the Durban, Rhodesian, South African and Transvaal Museums and Agricultural Dept. of Southern Rhodesia.

Length of body: about 13–17 mm.

Length of wing: about $13\frac{1}{2}$ – $17\frac{1}{2}$ mm.

Locality: East Transvaal and Southern Rhodesia and according to Bezzi also Northern Rhodesia, Nyasaland, Congo and East Africa.

The species appears to be slightly variable, one form of it having the black abdomen discally above more

extensive even in ♂♂ and the medial part of face not entirely yellowish-haired.

Exoprosopa batrachoides Bezz.

(Bezzi, p. 646 and pl. L, fig. 22, *Trans. Ent. Soc. Lond.*, 1911 (1912);

Bezzi, p. 160, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 283 and 327, and fig. 33, *The Bombyliidae of the Ethiopian Region*, 1924.)

A very distinct and easily recognizable species of which the chief characteristics are:

Body with the abdomen conical, markedly attenuate posteriorly; last tergite rather elongate; greater part of head, body and legs yellowish red or red, only a streak on each side behind buccal cavity and below head, greater discal part of thorax above, infusions on pleurae, greater part of tergite 1 and a central row of triangular spots on tergites 2–5, decreasing in size posteriorly, being dark or black; eyes dark reddish brown to blackish brown; proboscis and sometimes antennal joint 3 also dark reddish or blackish brown. *Vestiture* with the hairs on front half of frons, on antennae and face yellowish, the scaling on head in front also yellowish; hairs in collar above and on pleurae yellowish or straw-coloured yellowish, becoming more whitish ventrally; tuft on sides of tergite 1 whitish; hairs on sides of rest of abdomen relatively short, mostly pale yellowish, only the tuft-like ones on hind corners dark or black; fine hairs on thorax and scutellum, bristles on these parts, fine hairs on abdomen and dense tuft of longish ones at apex black; scaling on body above mainly greyish yellowish or greyish

whitish, those across base of tergite 2, especially on sides, on sides of 3 and to a certain extent on extreme sides of the rest more whitish; hairs and scaling on venter whitish; scaling on legs dark or black. *Wings* relatively shorter than body, greyish hyaline, the base and costal cell yellowish or reddish brownish and the first posterior and marginal cells also tinged yellowish; veins yellowish or yellowish red, the first, third and sometimes fifth being paler, and with spot-like infuscations on bases of fourth and third posterior cells and on middle cross vein; discoidal cell slightly dilated apically, its apical vein straight or scarcely sinuous; middle cross vein at about or a little beyond middle of discoidal cell; submarginal cross vein sinuous; basal comb well developed, pale-scaled above. *Antennae* with joint 3 conical, its style long, longer than half length of joint. *Legs* with numerous spines on middle and hind femora; spicules in outer upper row on hind tibiae dense. *Last sternite* in ♂ elongated. *Hypopygium* of ♂ (text-fig. 244) with the aedeagal process more or less tongue-shaped; lateral struts well developed; basal strut ham-shaped. The aedeagal apparatus is reminiscent of that of *nuragasana* (cf. text-fig. 242, right), but lateral struts are more developed.

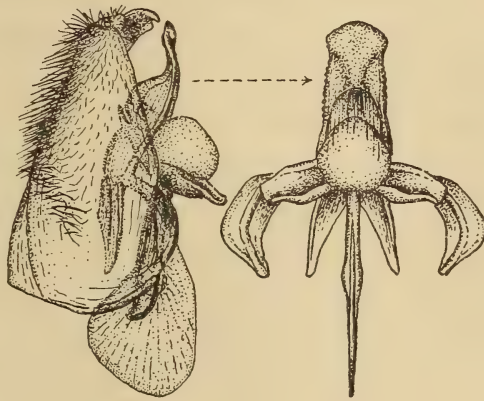
In the South African Museum.

Length of body: about 16–18½ mm.

Length of wing: about 15–16½ mm.

Locality: Southern Rhodesia and Nyasaland.

From the preceding species *stannusi* which it superficially resembles, it may at once be distinguished by the much more reduced anterior infuscation in the wings, entirely yellowish or reddish head, less black on abdomen in ♀♀, dark-scaled legs and different hypopygium.



TEXT-FIG. 244. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa batrachoides* Bezz.

Exoprosopa stvensoni n. sp.

This species is also to be included in the *major*-section among those forms which lack dark bands or infusions across the wings. It is characterized as follows:

Body with the abdomen somewhat conically pointed, the body itself mainly ferruginous reddish; antennal joints 1 and 2, face and greater part of legs more yellowish; occipital part above and on sides (excepting narrowish

reddish line bordering eyes on sides), thorax above, very narrow base of scutellum, exposed part of tergite 1, discal triangles on abdomen above (becoming reduced in size posteriorly), to a feebler and indistinct extent sides basally of tergites 3 and 4 and pleural parts (excepting yellowish red sutural parts and middle ridge of sternopleuron) black or dark; coxae, bases of femora, more or less bases of sternites, antennal joint 3 and proboscis also darkened, more blackish brown. *Vestiture* with the hairs on frons, antennae above, prealar, postalar and scutellar bristles, and shortish hairs on abdomen above, especially in hinder half, and the spines and spicules on legs black; rest of hairs on body above and below yellowish, those in plumula, on metanotum, sides of tergite 1 and base of venter being distinctly more whitish and those on sides of face, humeral and notopleural bristles and the fairly dense, but shortish, bristly hairs on sides of abdomen and densely across hind margin of last tergite gleaming more fulvous or pale reddish golden; scaling on head in front pale yellowish, becoming even paler, more yellowish white on sides of face; scaling behind eyes also yellowish white to nearly white; scaling on thorax above mainly yellowish, the hair-like ones in streak on sides more whitish; scaling on pleurae yellowish white, more whitish on sternopleuron; scaling on abdomen above mainly pale yellowish to creamy yellowish, apparently more whitish on sides of tergites 2 and 3 and to a lesser extent across base on sides of 4, and without any dark or black scaling; that on venter more whitish, being white along middle; scaling on legs mainly yellowish white to almost white in certain lights; spines of ovipositor in ♀ pale reddish golden. *Wings* rather pointed, distinctly, though faintly, tinged subopaquely reddish yellowish, slightly deeper or more darkly so and also more yellowish at base, in costal cell and to a lesser or much feebler extent in first basal cell and basal part of marginal cell; veins mainly pale reddish, the fifth one being more yellowish; basal cross veins of third and fourth posterior cells, middle cross vein, extreme base of discoidal cell and to a very much fainter extent apical cross vein of discoidal cell and basal cross vein of second apical cell with faint or diffuse spot-like infusions; discoidal cell slightly dilated apically, almost subtruncate, its apical vein feebly sinuous, oblique to hind border; middle cross vein a little beyond middle of discoidal cell; squamae yellowish white, white-fringed; halteres pale yellowish, with pale yellowish white knobs. *Head* with antennal joint 3 conical, its rather stoutish style a little more than half length of joint. *Legs* (front ones missing in this specimen) with rather shortish and stoutish spines in two rows below on hind femora; middle femora with two of the spines on anterior part below long and stoutish.

From a ♀ in the South African Museum.

Length of body: about $14\frac{1}{2}$ mm.

Length of wing: about 14 mm.

Locality: Southern Rhodesia: Rhodesdale (Stevenson, 10–18 Nov. 1923).

From the very similar reddish species *batrachoides* it differs in having the abdomen less sharply pointed, the last tergite much shorter and without a black

fringe, black humeral tubercles, not deep reddish brown costal part in wings, black hairs on frons, much shorter style to antennal joint 3, and relatively narrower interocular space in ♀. Superficially it also resembles *rubicunda* in the reddish body and reddish-tinged wings, but may at once be distinguished by the absence of a projecting stump on lower vein of discoidal cell, much fainter spots on cross veins and absence of a white band across base of tergite 2.

Named in honour of Capt. R. Stevenson of Selukwe who has presented many interesting insects to the South African Museum.

Exoprosopa thoracica Bezz.

(Bezzi, pp. 284 and 347, *The Bombyliidae of the Ethiopian Region*, 1924.)

Two ♀♀ in the collections before me, though not agreeing in certain details with Bezzi's description of this species, have so many points in common with it that I have little hesitation in referring them to *thoracica*. They are characterized as follows:

Body mainly black; postalar calli, greater part of scutellum and obscure spots on sides of tergites 2 and 3 (absent in one ♀) reddish; legs very dark blackish brown to black, black-scaled. *Vestiture* with the hairs on head in front mostly black, pale sericeous yellowish to whitish on sides of face; scaling on front half of head gleaming whitish; collar above, upper part of mesopleural tuft, propleural tuft, pteropleural bristles, metapleural tuft and plumula orange yellowish; rest of hairs on pleurae more yellowish, but with black hairs on mesopleuron and intermixed on pteropleuron and coxae where hair-like scaling is also yellowish; tuft at base of abdomen and hair on sides basally of tergites 2 and 3 and on greater part of venter whitish, the rest rather dense and longish; hairs on sides and apex of abdomen, bristles and bristly hairs on sides of thorax, postalar calli and on scutellum and short ones on rest of body above black; scaling on greater part of body above black, but with yellowish ones at base of thorax and hind border of scutellum; abdomen above mostly with dense black scaling, but with bands of pale scaling across hinder part of tergite 2, basal part of 3 and across 7, the two former bands much broader and white on sides, narrower or interrupted and yellowish discally, and also with some white scaling on sides of 6; scaling on venter dense, white, but dark or black across sternites 4 and 5. *Wings* faintly smoky greyish or greyish hyaline, the base and fore border tinged brownish to blackish brown up to proximal half of fourth vein and also occupying to a faint extent bases of enclosed submarginal and first posterior cells; faint spot-like infuscations indicated at bases of fourth and third posterior cells and discoidal cell and on middle cross vein; discoidal cell subacute apically; middle cross vein at about or just beyond middle of discoidal cell; halteres and knobs dark. *Antennae* with joint 3 elongate-conical, its style longish, a little more than half length of joint. *Legs* with numerous spines on middle and hind femora; front tibiae non-spiculate.

In the South African Museum and Agricultural Department of Southern Rhodesia.

Length of body: about $13\frac{1}{2}$ mm.

Length of wing: about $13\frac{1}{2}$ mm.

Locality: Portuguese East Africa and Southern Rhodesia.

Exoprosopa strenua-section

Two South African species *Exoprosopa strenua* Lw. and *Exoprosopa praefica* Lw. show a certain characteristic wing-pattern and antennal characters which are different from those of the *tripartita* and *major*-sections and also the following *hypargyra*-section. Their wing-pattern more or less resembles that of the Mediterranean *Exoprosopa pectoralis*. As they cannot be placed satisfactorily in either the preceding sections or the one following, they are here placed in a section by themselves with the following characteristics:

Wings with a *Litorrhynchus*-like pattern, consisting of an extensive dark infuscation, extending from base to level of submarginal cross vein, leaving the apex of wings clear, hyaline or whitish and with this infuscation divided in the middle by a clear indentation which extends anteriorly into discoidal cell up to or near to the fourth vein, thus dividing the infuscation more or less into two; the infuscated band beyond clear indentation broad, broadly reaching hind margin; axillary lobe markedly broad, at least $1\frac{1}{2}$ or 2 times as broad as anal cell and very broadly dilated or rounded posteriorly; basal comb very strongly developed; antennal joint 3 shortly conical, with a long and slender style which is at least as long as the joint itself.

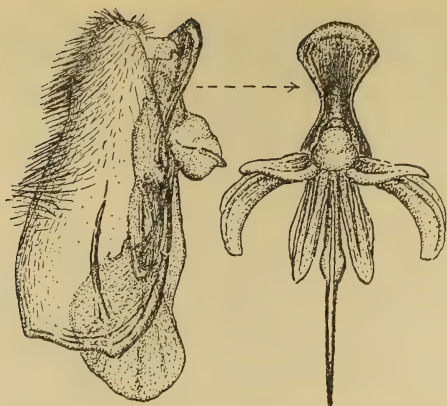
Exoprosopa strenua Lw.

(Loew, p. 228 and tab. ii, fig. 26, *Dipt. Faun. Südafr.*, i, 1860; Bezzi, p. 148, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 251, *The Bombyliidae of the Ethiopian Region*, 1924.)

One of the largest species of *Exoprosopa* in South Africa which is characterized as follows:

Body dark or black above, but with much ferruginous reddish above and below; head, with the exception of dark brownish to blackish brown eyes, third antennal joints and proboscis, entirely yellowish reddish, orange reddish to ferruginous reddish, the buccal part more pallid; postalar calli, entire scutellum and greater part of abdomen above ferruginous reddish or red, especially in ♂, excepting only a central row of black triangular patches on tergites 2-4 (or 5) in ♂, decreasing in size posteriorly, or in ♀ the broadish, black, basal, discal parts of all the tergites; pleurae to a variable extent, greater part or entire venter in ♂, at least basal half of venter or sternites 1-4 and hind margins of posterior sternites in ♀ and legs in both sexes also ferruginous red, yellowish reddish or reddish brownish; tarsi darker. *Vestiture* with the hairs on head in

front and on face entirely black; scaling on head in front pale yellowish whitish and dull, that behind eyes more whitish, not silvery; hairs in anterior part of collar above and upper part of mesopleural tuft straw-coloured yellowish to faintly yellowish; those on rest of pleurae slightly paler straw-coloured to whitish, a few intermixed ones on mesopleuron, hairs in hinder part of meta-pleural tuft and bristly ones on coxae dark or black; some bristles on pleurae gleaming reddish yellow; hairs in hinder part of collar, bristly ones on hinder part of humeral tubercle, along notopleural part, prealar, postalar and scutellar bristles, fine hairs on thorax above, hairs across hinder part and even sides of tergite 1, on sides of abdomen from apex of tergite 2 to hind end, those on abdomen above and on last two sternites also black; tuft on sides of abdomen basally and on sides of 2 whitish; scaling on thorax above greyish yellowish, with streaks of darker ones, the streak on sides dense and whitish; scaling on abdomen above not very dense, predominantly whitish or very pale yellowish whitish, more whitish on sides, tending to be more dense in cross bands across bases of tergites and across 6 and 7, the hind margins of 2-4, especially on sides, with black scales; venter with relatively sparse pale or whitish scales and sparse, shortish, pale hairs except on last two sternites; scaling on legs pale or gleaming whitish below and laterally, but black above. *Wings* strongly developed, rather pointed, with a pattern consisting of an extensive brownish to blackish brown infuscation, extending from base to near apex of costal cell or to base of submarginal cross vein and jaggedly across to basal half of hind margin of second posterior cell, but divided more or less into two parts or bands by a broadish slightly subopaquely whitish indentation extending obliquely across from apical half of axillary lobe, across apical part of anal cell, basal half of fourth posterior cell and base of third posterior cell to fourth vein, leaving the base and a little more than apical half of discoidal cell infuscated; apex of wing also whitish like indentation; middle cross vein, base of second vein, apex of discoidal cell and on lower vein of latter, and base of posterior vein between second and third posterior cells with faint, more yellowish, spots; base of wings across bases of basal and anal cells also more yellowish; veins yellowish brownish, reddish brownish to brown, the first, third and fifth being paler; submarginal cross vein S-curved; first posterior cell narrowed apically, but still very broadly open; discoidal cell elongate; narrowish, acute apically, its apical vein long, S-curved and parallel to hind margin; middle cross vein at about or near middle of discoidal cell; second posterior cell produced basally, its sides sinuous; anal cell sometimes acute apically or even closed; axillary lobe markedly broad, at least $1\frac{1}{2}$ times or slightly more as broad as anal cell, broadly or almost sub-angularly rounded posteriorly; basal comb strongly developed; squamae large, yellowish or yellowish brown, brownish or dark-fringed; halteres with pale yellowish knobs. *Head* with broad interocular space on vertex, slightly narrower in ♂ than in ♀; antennal joint 3 shortly conical, rather rapidly narrowed apically, subequal in length or usually slightly shorter than joints 1 and 2 combined, its style long, slender, usually much more than half,



TEXT-FIG. 245. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa strenua* Lw.

more often as long as or even longer than joint. *Legs* with some spicules on front tibiae; middle and hind femora with numerous, though shortish, spines below, usually in two rows; spicules in outer row on hind tibiae dense and numerous. *Hypopygium* of ♂ (text-fig. 245) with fairly dense hairs on basal parts; apex of beaked apical joint indented; ventral aedeagal process broadened, fan-shaped apically; lateral struts well developed; basal strut leg-of-mutton-shaped.

In the Durban, Transvaal and South African Museums.

Length of body: about $12-18\frac{1}{2}$ mm.

Length of wing: about $15\frac{1}{2}-24\frac{1}{2}$ mm.

Locality: East Cape Province, Great Karoo, Koup Karoo, Nieuveland Karoo, Namaqualand and Basutoland.

Exoprosopa praefica Lw.

(Loew, p. 229 and tab. ii, fig. 27, *Dipt. Faun. Südaf.*, i, 1860; Bezzi, pp. 251 and 265, *The Bombyliidae of the Ethiopian Region*, 1924.)

This South-east African and Rhodesian black-haired species resembles *strenua* in the pattern of its wings, its predominantly reddish head and the ferruginous parts of its body, but in other respects it is entirely different. It differs from *strenua* in the following respects:

Body much smaller; paler or reddish parts of body, though corresponding with those of *strenua*, deeper ferruginous reddish or reddish brown. *Vestiture* with the hairs and bristles in entire or greater part of collar and on entire thorax above and below, including metapleural tuft, entirely black, only plumula whitish; hairs on sides of abdomen distinctly much denser and longer and all, including tuft at base, and those on venter, also entirely black; scaling on thorax above mostly black and paler ones more brownish, the streak of hair-like scales on sides less conspicuous, darker, more brownish and not white; hair-like scaling on pleurae also black like the hairs; scaling on abdomen above predominantly black and denser, only those transversely on sides of tergite 3 and numerous ones intermixed on sides of 6 and 7 white, these white scales, especially on sides of 6 and 7, much longer; scaling on venter and legs also entirely black. *Wings* with a similar pattern, but the infuscation much darker, very dark blackish brown to black and base more reddish, the apical border of infuscation straighter or straight, not jaggedly indented, the clear or hyaline

whitish oblique indentation relatively narrower, with its sides straighter and not slightly produced apicalwards in discoidal cell and also occupying distinctly less than apical half of axillary lobe. *Head* with the interocular space in ♂ distinctly much narrower, only about or a little more than twice width of ocellar tubercle, whereas in ♂ of *strenua* it is quite three times width of tubercle. *Legs* with the front tibiae non-spiculate and with the spines on middle and hind femora fewer, relatively longer. *Hypopygium* of ♂ differs in having the ventral aedeagal process distinctly less broadened and less fan-shaped apically and in having relatively smaller lateral struts and a narrower basal strut.

In the Durban, Rhodesian and South African Museums.

Length of body: about 11–12½ mm.

Length of wing: about 13–14 mm.

Locality: Natal, Zululand and Southern Rhodesia.

Exoprosopa hypargyra-section

To this section two known South African species are referred which also show a somewhat similar type of wing-pattern to that of the preceding *strenua*-section, but which, however, differ to such an extent that their wing-pattern, together with other specific differences, necessitate a separate and distinct section. This section is closer if not merely representing extreme forms of the *dux* and *sigmoidea*-section which follows. As a separate section these two species have the following in common: Infuscation in wings more or less *Litorrhynchus*-like, usually developed in both sexes, with a clear indentation in the middle which has more irregular margins, but which also extends to or nearly to fourth vein; dark cross band beyond clear indentation broadish, but very much narrower than in *strenua*-section though also extending either to hind margin or at least into fourth posterior cell; axillary lobe distinctly very much narrower, not broadly and subangulately rounded; style of antennal joint 3 very much shorter, very much shorter than joint; sternopleuron usually with a conspicuous patch of silvery white or snow-white scales.

Exoprosopa hypargyra Bezz.

(Bezzi, p. 169, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 278, *The Bombyliidae of the Ethiopian Region*, 1924.)

In his description Bezzi compared this species with his *fastidiosa* and with a species he took to be the *seniculus* of Wiedemann. With both these species it, however, has no affinity whatsoever, showing in its wing-pattern a greater resemblance to some species of *Litorrhynchus* or to that of the Palaearctic *Exoprosopa lugens* Par., a species which Engel probably wrongly consigned as a synonym of *seniculus* s. str. It is characterized as follows:

Body mainly black; buccal margin of face, slightly more than apical half of scutellum, narrow hind margins of posterior tergites, especially in ♂, and slightly

broader hind margins of sternites, especially posteriorly, or in ♂ much broader hind margins and sometimes even entire last few sternites yellowish red or reddish; legs very dark or black. *Vestiture* with the hairs on head in front entirely black, the scaling gleaming whitish or pale brassy or even silvery; collar above, hairs on pleurae, sides of tergite 1 and base of 2 laterally and hairs on basal part of venter straw-coloured yellowish or pale yellowish, becoming whiter on lower parts and venter; fine hairs on thorax above, notopleural hairs and bristles, postalar and scutellar bristles, hairs on sides of abdomen and above, a few intermixed ones on mesopleuron and hairs on last three sternites, especially in ♀, black; hairs on last tergite and sternite, or in some ♂♂ also on last two sternites, with numerous reddish golden or even predominantly reddish golden ones; scaling on thorax in streaks of greyish yellowish or greyish, separated by darker ones, the streaks on sides of thorax and across hind margin of scutellum more whitish; scaling on abdomen above composed of white, yellowish or ochreous and dark ones, the white ones dense and concentrated on sides of tergites, partly across tergite 6 and on entire 7 where they are conspicuous and almost silvery, with the ochreous ones densely across greater part of tergites, being replaced by black ones across hind margins of 2-5, especially in ♂♂; sternopleuron with a patch of dense silvery scales; scaling on sternites 2-4 dense, silvery white, that on 5 dark or blackish and that on 6 and 7 gleaming greyish or greyish yellowish to whitish in certain lights; scaling on legs gleaming black. *Wings* with a dark blackish brown *Litorrhynchus*-like pattern, the extreme base yellowish and basal third of marginal cell slightly more whitish translucent; apical part of discoidal cell produced, its apical vein long and S-curved; squamae pale yellowish whitish, white-fringed. *Antennae* with joint 3 elongate, only slightly narrowed apically, its style relatively short and stoutish. *Hypopygium* of ♂ (text-fig. 246, left) with the beak of apical joints rather broadish, flattened; base of projecting part of aedeagus without spines or processes; dorsal part of ventral aedeagal process carinately arched or raised medially; lateral struts well developed and basal strut broad.

In the British and South African Museums.

Length of body: about 10-12½ mm.

Length of wing: about 10½-12½ mm.

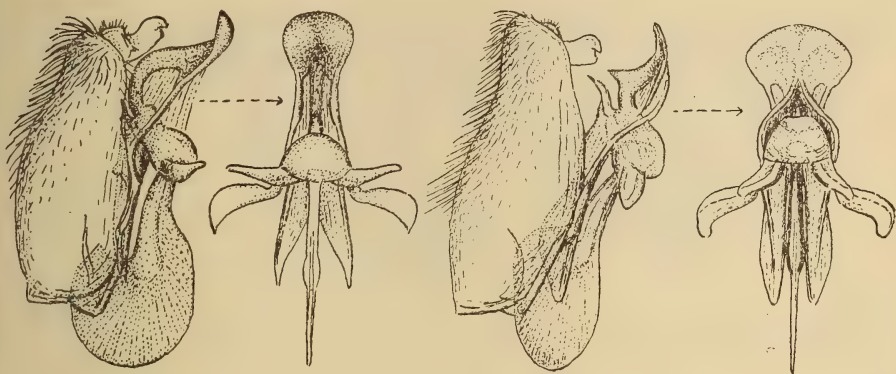
Locality: South-West Africa.

Exoprosopa pterosticha Hesse

(Hesse, p. 178 and fig. 3, *Ann. Transv. Mus.*, xvii, 1936.)

Body mostly black above; sides of face below antennae, buccal margin and lower sides of face, greater part of scutellum, sides of tergites 2 and 3 and more narrowly the rest of abdominal sides in ♂, the hind margins of posterior tergites in ♂, to a variable extent the metapleurae; the broadish hind margins of sternites or in some ♂♂ entire venter, and the legs yellowish or yellowish red. *Vestiture* with the hairs on head in front black and the scaling yellowish or

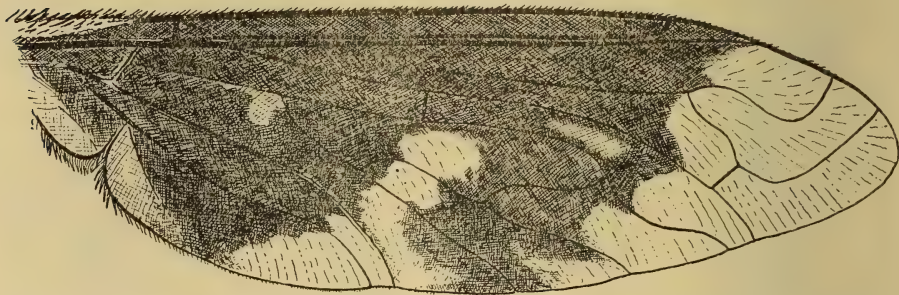
greyish yellowish; collar above, upper part of mesopleural tuft and propleural tuft yellowish to golden; rest of hair on pleurae paler, more whitish like plumula and hair on sides of tergite 1 and base laterally of tergite 2; that on venter gleaming sericeous whitish; fine hairs on thorax, notopleural hairs and bristles, postalar bristles, upper scutellar bristles, hairs on sides of abdomen and those on coxae black; finer lower scutellar bristles, numerous hairs on sides of last tergite or in some ♀♀ even on most of this tergite reddish golden; scaling



TEXT-FIG. 246. Left: Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa hypargyra* Bezz. Right: Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa pterosticha* Hesse.

on thorax above in streaks of fine greyish yellowish and dark ones, those across hinder part of scutellum more whitish; scaling on abdomen above composed of white, ochreous yellowish and dark ones, the white ones arranged as a band across base of tergite 2, across 3 and 6 and 7, with the yellowish ones across sides on hind margin of 1, across 4 and 5 and hinder part of 2 and also narrowly across base of 3 and the black ones more or less across middle of 2, hind margins of 2-5 and to a certain extent across bases of 4 and 5; sternopleuron with a patch of silvery scales; scaling on venter mostly whitish and that on legs yellowish. *Wings* with a chocolate-brownish pattern as shown in text-fig. 247, with the second band, especially in some ♂♂, sometimes extending more along vein between third and fourth posterior cells, tending to close the gap to a variable extent and to isolate a clear spot in discoidal cell; squamae pale yellowish, white-fringed. *Head* with the face rather shortish, broad; antennal joint 3 elongate-conical, its slender yellowish style usually less than half length of joint in ♂ and in some ♀♀ and about half as long as joint in ♀; proboscis relatively long, projecting some distance beyond buccal apex, non-spinulate below. *Hypopygium* of ♂ (text-fig. 246, right-hand figures), with the flattened beak of beaked apical joints comparatively broad; base of projecting part of aedeagus without distinct spines; ventral aedeagal process broadened apically and with its medial dorsal part produced into a spine-like process; basal strut well developed.

Since my description of the typical form from Bechuanaland in 1936 I have received a series of ♂♂ and ♀♀ from the Transvaal, Portuguese East Africa and Rhodesia which differ from the typical form in having the infuscation in wings slightly less extensive, the basal infuscation leaving slightly more of the apical parts of the anal and axillary cells hyaline and the cross band beyond middle clear area slightly narrower, not quite reaching hind margin of wings and only



TEXT-FIG. 247. Wing of ♀ *Exoprosopa pterosticha* Hesse (after Hesse, fig. 3, p. 178, *Ann. Transv. Mus.*, xvii, 1936.)

filling middle part of third posterior cell and not its greater part and not extending far into fourth posterior cell. The face too tends to be more extensively yellowish, the black on sides and even discally sometimes narrower, and the scaling on legs in some specimens darker.

In the Transvaal and South African Museums and the Commonwealth Institute.

Length of body: about $8\frac{1}{2}$ –12 mm.

Length of wing: about 9 – $12\frac{1}{2}$ mm.

Locality: Bechuanaland, South-West Africa, Southern Rhodesia and Portuguese East Africa.

From *hypargyra* it differs in having the middle clear indentation in wings much narrower, more oblique and not reaching fourth vein in discoidal cell; the dark cross band also narrower, more oblique, much longer and reaching hind margin or extending into fourth posterior cell; almost uninterrupted, broadish and conspicuous white bands across tergites 3 and 6; white scaling on all sternites; and much longer style.

Exoprosopa dux-section

This and the following *heros*-section include a series of species which as in the case of some species of *Thyridanthrax* show a remarkable sexual dimorphism in which the wings of the ♂♂ are either markedly differently infuscated, or have a slightly different pattern, from those of the ♀♀. This sexual difference in wing-infuscation has caused great confusion in the literature dealing with the

various species and, in the case of at least all the South African species, the ♂♂ have been described as separate species and have even been placed in groups diametrically opposed to those in which the ♀♀ are included. Representatives of the *dux*-section have the following in common: Infuscation in wings of ♂♂ dimidiate, extending obliquely across from about middle of axillary lobe to or near to apex of costal cell, but in ♀♀ with a backward extension or narrowish cross band from apical part of the main anterior infuscation which extends across apical part of discoidal cell into third posterior cell, but not reaching fourth posterior cell or hind margin, this extension sometimes interrupted and reduced to an isolated spot at base of second posterior cell.

Exoprosopa sigmoidea Bezz.

(Bezzi, p. 640, *Trans. Ent. Soc. Lond.*, 1911 (1912); Bezzi, p. 157, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 279 and 299, *The Bombyliidae of the Ethiopian Region*, 1924; Hesse, p. 179, *Ann. Transv. Mus.*, xvii, 1936.)

(Syn. = *fastidiosa* Bezzi, in part, p. 169, *Ann. S. Afr. Mus.*, xviii, 1921; Hesse, p. 178, *Ann. Transv. Mus.*, xvii, 1936.)

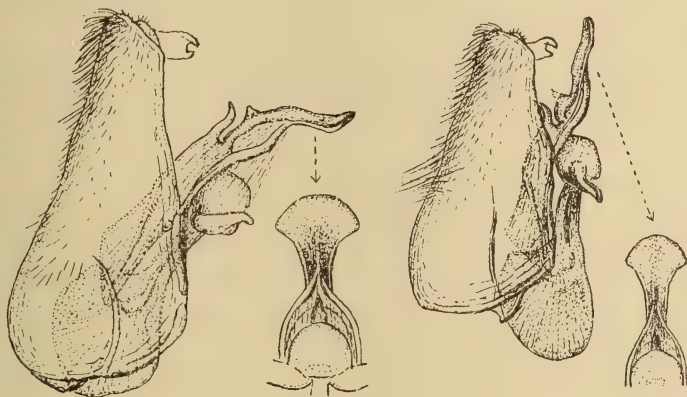
(Syn. = *seniculus* Bezzi, in part, nec Wiedemann, p. 290, *The Bombyliidae of the Ethiopian Region*, 1924; *seniculus* var., Hesse, p. 179, *Ann. Transv. Mus.*, xvii, 1936.)

The identity of this species is not entirely clear. Specimens from various localities in Southern Africa have been identified and labelled by Bezzi himself as *sigmoidea*, *fastidiosa* and *seniculus*. The original description of *sigmoidea* was based on a single ♂-specimen from West Nyasa. Subsequently in 1921 and 1924 certain specimens from the Cape, Free State and Transvaal were also referred to *sigmoidea*. From Bezzi's keys and short descriptive notes and also from some of the actual specimens in the collections before me, it is quite evident that he emended his original diagnostic description of the species to such an extent that some of these latter specimens cannot be made to agree in all respects with the original description. In view of the fact that the *sigmoidea*-type of wing-pattern is present in several closely related species which differ in other respects, it is a moot point whether all the specimens from Southern Africa which Bezzi referred to his *sigmoidea* are in fact co-specific with that species. A very careful comparison of all the material referred to *sigmoidea* with the original type-specimen from Nyasaland is necessary to clarify the specific identity of the various specimens. The same confusion exists in the case of *fastidiosa* of which the specific description is based on a solitary ♀-specimen from Nyasaland, but to which species specimens from South-West Africa, with slightly different characters, were subsequently referred. Bezzi rendered this confusion still greater by wrongly identifying certain South African forms of *fastidiosa* and also other related species as the *seniculus* of Wiedemann; a specific name

which not only Bezzi, but Loew and also Engel have indiscriminately given to various African and even Palaearctic species. As the long series of *sigmoidea*-specimens before me exist only in the ♂-sex and the equally long series of *fastidiosa* and *seniculus*-specimens are only represented by ♀♀ and both sexes agree in all other specific characters and have also been collected at the same localities and on the same date, there is no doubt whatever that the *fastidiosa* and *seniculus*-specimens as identified by Bezzi and which also agree specifically with his descriptive notes and emendations, are the ♀♀ of *sigmoidea* which he described first. The species is characterized as follows:

Body mainly black; sides of face below antennae, its buccal margin and extreme sides yellowish to a variable extent, the black sometimes confined discally saddle-like; hinder half or part of scutellum, hind margins of sternites, more or more often very broadly so in ♂, and in ♂ also sides of tergites 2 and 3, reddish; legs very dark piceous reddish to black. *Vestiture* with the hairs on head in front, notopleural bristles, hairs on thorax above, postalar and upper row of scutellar bristles, intermixed hairs on mesopleuron, coxal bristles, dense hairs on sides of abdomen black; collar above, hairs on pleurae and metapleural tuft yellowish to golden yellowish, more whitish on prosternal part; tuft on sides of tergite 1 and on sides basally of 2 whitish; hairs on venter gleaming whitish to very pale golden, especially along extreme sides; scaling on head in front gleaming whitish, pale brassy to pale yellowish; fine ones on thorax above in streaks of greyish to yellowish, separated by dark ones, the streak on sides and across hind part of scutellum whitish; scaling on abdomen above composed of a broad band of white ones across tergites 3, 6 and 7, on sides of 2 and to a variable and lesser extent on extreme sides of 4 and 5, of yellowish or buff-coloured ones across base of 2 and across 4 and 5, and of black ones across hinder parts of 2 and 3 and bases and hind margins of 4 and 5 and sometimes extreme hind margins of 6 and 7; scaling on sternopleuron and coxae yellowish or yellowish whitish, that on venter whitish to sometimes very pale brassy; scales on legs mainly dark, but gleaming yellowish or greyish yellowish near bases of femora. *Wings* in ♂ (pl. iii, fig. 3) dimidiately infuscated, dark blackish brown, extending from less than basal half of axillary lobe across a little beyond middle of anal cell more or less straight across to first vein opposite end of false vein in costal cell, without or scarcely any indentation at base of discoidal cell; infuscation in ♀ (pl. iii, fig. 4), either very similar, but broader apically, ending truncately at submarginal cross vein across marginal cell to end of costal cell and also extending into more than basal half of enclosed submarginal cell, with or without an isolated spot or cloud at base of second posterior cell, or the infuscation is much broader apically, its margin extending zigzagly backward from end of costal cell across more than basal halves of enclosed submarginal and first posterior cells to form a broadish, variable, hook-like, backward extension across apical part of discoidal cell and base of second posterior cell into third posterior cell (cf. pl. iii, fig. 4), which backward extension is sometimes pinched off or thinned out at end of discoidal cell to form an isolated spot of

variable extent; apical vein of discoidal cell S-curved; middle cross vein at about middle, or just before middle, of discoidal cell; praediscoidal spot whitish and conspicuous; squamae yellowish, pale-fringed. *Antennae* with joint 3 conical, slightly shorter in ♂, its style longish, slender, a little more, or in ♂ even much more, than half length of joint, sometimes a little less than half in ♀. *Hypopygium* of ♂ (text-fig. 248, left) with the hairs on basal parts shortish; beak of beaked apical joints flattened, broadish, its apex rather prominently bifid;



TEXT-FIG. 248. Left: Side view of hypopygium and ventral view of front half of aedeagal apparatus of ♂ *Exoprosopa sigmoidea* Bezz. Right: Side view of hypopygium and ventral view of front half of aedeagal process of ♂ *Exoprosopa pallidipes* n. sp.

dorsum of aedeagal process without any processes at base of aedeagus; ventral aedeagal process broadened apically, with a blunt, spine-like process medially and dorsally; lateral struts narrowish; basal strut racket-shaped.

In the Transvaal, Rhodesian and South African Museums and Commonwealth Institute.

Length of body: about 9–12½ mm.

Length of wing: about 9½–14½ mm.

Locality: Orange Free State, Transvaal, South-West Africa, Bechuanaland, Southern Rhodesia and Portuguese East Africa.

Apart from the differences in the development of the backward extension in the wings of ♀♀, the species appears to be also variable in other directions. The specimens from the Orange Free State seem to constitute a sort of bridging form between the more typical form and the next species and differ from the typical form in having a distinct, though slight, indentation in margin of infuscation in ♂ at base of discoidal cell and in having the style of antennal joint 3, even in ♂, a little shorter than half length of joint.

Exoprosopa pallidipes n. sp.

(Syn. = *seniculus* Bezzi, in part, nec Wiedemann, p. 154, *Ann. S. Afr. Mus.*, xviii, 1921.)

Almost inseparable from *sigmoidea*, but differs in having the legs pale yellowish or luteous, only the apices of femora and the tibiae darker; face laterally and along genal parts more extensively yellowish; margin of infuscation in wings in ♂ distinctly roundly indented at base of discoidal cell, the margin at this spot thus not stretching more or less straight across to middle cross vein as in *sigmoidea*; margin of infuscation in discoidal cell in ♀ bounded by its upper vein, not extending streak-like a little below that vein as in *sigmoidea*, with the backward hook-like extension more constant, slightly narrower and apical margin of infuscation deeply indented, not slightly produced, along third vein; apical part of upper vein of discoidal cell slightly more convexly rounded; style of antennal joint 3, even in ♂, distinctly shorter, much shorter than half length of joint; and the hypopygium of ♂ (text-fig. 248, right) distinctly different, its ventral aedeagal process being distinctly narrower, straighter, its medial dorsal part less round and the lateral struts relatively broader.

From 2 ♂♂ and 14 ♀♀ (holotype in Transvaal Museum, allotype in the South African Museum).

Length of body: about $9\frac{1}{2}$ –11 mm.

Length of wing: about $10\frac{1}{2}$ –12 mm.

Locality: Karoo: Willowmore (Brauns, April 1923 and 10 Feb. 1923) (types); Modderfontein near Willowmore (Brauns, 20 March 1925); Murraysburg Dist. (Mus. Exp., March 1931). Koup Karoo: Laingsburg Dist. (Mus. Exp., Feb. 1938). South-western and South Cape: Piketberg (Mus. Exp., Jan. 1940); De Hoek, Uitenhage (Munro, 15 March 1919).

One large ♀ from Vanwyksvlei near Carnarvon, collected by Alston, having a body-length of $13\frac{1}{2}$ mm. and a wing of 14 mm. and labelled by Bezzi as *seniculus*, is a variety with distinct reddish hind margins to tergites and broad red on sides of 2 and 3 much like the next species.

Exoprosopa jubatipes n. sp.

Very similar to *pallidipes* but differing in being larger; in having the sides of frons anteriorly and sides of face more extensively reddish, even greater part of face in ♂ may be reddish; hind margins of tergites and sides of 2 and 3 more broadly and more extensively reddish, even in ♀; pleural parts with more reddish; legs relatively stouter, the front ones shorter, stouter and front tarsus relatively shorter and more hairy in ♀, the hind tibiae with the outer row of spicules and longish scales distinctly much denser, closer together, more crest-like; proboscis shorter, stouter; collar, hairs in upper part of mesopleural tuft deeper golden, bristly hairs intermixed on mesopleuron and on extreme sides and posterior part of venter more reddish golden and extreme sides of face

below with some golden hairs; infuscation in wings beginning a little before basal half and not at about basal half of axillary lobe and without or with only very little infuscation at base of fourth posterior cell and in both sexes with less of basal parts of enclosed submarginal and first posterior cells infuscated.

From 1 ♂ and 2 ♀♀ in the South African Museum.

Length of body: about 14–15 mm.

Length of wing: about $14\frac{1}{2}$ – $15\frac{1}{2}$ mm.

Locality: South-western Cape: Robertson (Trimen, 1877) (holotype); Somerset West (Smithers, Feb. 1941) (allotype); Piketberg (Mus. Exp., Jan. 1940).

The ♂-holotype was labelled by Bezzi as *sigmoidea* from which it may, however, at once be distinguished by the reddish legs, more extensive red on sides of abdomen and sides of face, stouter and shorter proboscis, etc.

Exoprosopa hypargyroides n. sp.

Resembling *pallidipes* and *jubatipes* in the reddish legs, reddish hind margins of tergites and reddish on extreme sides of tergites, but differing from both these and also *sigmoidea* in the *Litorrhynchus*-type of infuscation in wings which also resembles that of *harpargyra*. The blackish brown infuscation extends to end of costal cell; its apical margin is slightly angularly produced down third vein, more so than in ♀-*sigmoidea*; the backward hook-like extension of infuscation is broad and clear indentation into discoidal cell much narrower than in *pallidipes*, much narrowed neck-like by an extension of hook at base of second posterior cell. The hairs on hinder part of venter dark and scaling across hind margin of tergite 1 whitish, that across base of tergite 2 discally also whitish, not yellowish and that across 4 and 5 also distinctly more whitish. Style of antennal joint 3 relatively shorter than in ♀-*pallidipes*.

From 1 ♀ in the South African Museum.

Length of body: about 13 mm.

Length of wing: about 13 mm.

Locality: Koup Karoo in the Merweville Dist. (Zinn, Jan.–Feb. 1947).

Exoprosopa mimetica n. sp.

A single ♂-specimen from Basutoland in the collections before me and which very closely resembles members of the *dux*- and *heros*-sections (*sigmoidea*, *pallidipes* and *heros*) is characterized as follows:

Body mainly black; a streak on sides of face below antennae and lower sides of face yellowish; first antennal joints, posterior part of postalar calli, posterior half of scutellum and broadish hind margins of sternites (or almost entire hind half of venter) reddish; legs very dark blackish brown or reddish brown, the tibiae scarcely or only slightly more reddish. *Vestiture* with the hairs on head in front black; hairs on disc of thorax, notopleural part, thoracic and scutellar

bristles, hairs on sides of abdomen from tergite 2, intermixed bristles on mesopleuron, a bristle on pteropleuron and bristles on coxae also black; dense hair in collar above and mesopleural and metapleural tufts deep yellowish; propleural tuft, prosternal hairs and hairs at base of venter paler, more straw-coloured; bristly hairs on lower and hinder parts of mesopleuron, on pteropleuron, a few on sides of scutellum below the dark ones and hairs on sides of venter gleaming reddish golden; plumula and tuft on sides of tergite 1 whitish; scaling on head yellowish; that behind eyes silvery; fine ones on disc of thorax above and on scutellum greyish yellowish, becoming more whitish on scutellum; streak of hair-like scales on each side of thorax also more straw-coloured or whitish; scaling on sternopleuron gleaming slightly reddish golden, but denser, more patch-like and silvery whitish posteriorly; scaling on abdomen above composed of black, yellowish and white ones, the latter arranged as a dense transverse band across base on sides of tergite 2, broadly across 3 (denser on sides), on extreme sides of 4 and across 6 and 7; the yellowish ones arranged across medial basal and discal part of tergite 2, more or less across middle discal part of 2 and across greater parts of 4 and 5; scaling on venter mostly white, becoming yellowish on sides; scaling on legs greyish, darker on tibiae. *Wings* glassy hyaline, dimidiately infuscated, the blackish brown infuscation occupying antero-basal part, its hind margin extending irregularly across from nearly basal half of axillary lobe to a little beyond middle cross vein, then only a little obliquely across to first vein to a point some considerable distance before end of false vein in costal cell, this apical part of infuscation thus occupying less than basal half of marginal cell and only extreme bases of enclosed submarginal and first posterior cells, the irregular hind margin showing an indentation in basal part of discoidal cell and a shallower one in anal cell; discoidal cell slightly dilated apically, its upper vein convexly curved apically, its apical vein slightly but regularly S-curved, its lower vein more or less straightly in line with posterior vein between second and third posterior cells, not bent backwardly before the junction; second posterior cell more or less rhomboidal, its sides however sinuous, slightly S-curved; praediscoidal spot rather large; squamae whitish, white-fringed; halteres with almost white knobs. *Head* with the interocular space on vertex about $2\frac{3}{5}$ times width of ocellar tubercle; antennal joint 3 elongate-conical, its style nearly a third length of joint; proboscis projecting a little beyond apex of face. *Legs* with the front ones rather feebly developed in comparison with other species in this category, without any spines on femora; middle femora with about 3 larger spines and 2 or 3 smaller ones below and 2 or 3 apical ones on outer lower aspect; hind femora with about 6 spines on anterior lower part and a row of small ones on posterior lower part; front tibiae without spicules.

From a ♂ in the South African Museum.

Length of body: about 10 mm.

Length of wing: about $10\frac{1}{2}$ mm.

Locality: Basutoland: Mamathes (Guillarmod, 4 Feb. 1951).

From the ♂ of *sigmoidea* it may at once be distinguished by the less extensive infuscation in wings which does not reach level of end of false vein in costal cell and of which the hind margin is irregularly indented and not more or less straight. From the ♂ of *pallidipes* which superficially has a similar type of dimidiate infuscation in wings, it may also be distinguished by its less extensive infuscation which does not reach end of false vein and which occupies considerably less of bases of enclosed submarginal and first posterior cells and by the darker legs. From both these species it may also be distinguished by the discoidal cell which is distinctly less produced apically and which has a much shorter, less contorted or S-curved apical cross vein; by the less produced basal part of second posterior cell; by the presence of pale scaling across middle part of tergite 2; and by the entirely black abdomen.

Though more or less falling within the *sigmoidea*-category as far as the general shape of the discoidal cell is concerned, it nevertheless resembles the ♂♂ of some forms of *heros* superficially. From such ♂♂ (which have no spot at base of second posterior cell) it may however be easily distinguished by the less extensive infuscation in wings which does not extend very near to end of false vein and which occupies very much less of the bases of enclosed submarginal and first posterior cells and which is distinctly more delimited in anal and axillary cells. Moreover the discoidal cell is distinctly not bent outwards or sinuous near or at base of second posterior cell. The style of third antennal joint is more slender and relatively longer. From *eluta* and *monticola* which also have a similar type of infuscation in the wings it may also be distinguished by the shape of the discoidal cell, the sharply delimited infuscation in anal and axillary cells, by the presence of pale scaling across middle of tergite 2, etc.

Exoprosopa rhodesiënsis n. sp.

(Syn. = *seniculus* Hesse, in part, nec Wiedemann, p. 179. *Ann. Transv. Mus.*, xvii, 1936.)

One of the large members of this section, resembling *pallidipes* and *jubatipes* and also the ♀ of the next species (*dux*).

Characterized by its reddish anterior half or more of frons and mainly reddish face on which there is only a variable black infusion on sides, its red scutellum, broadish red hind margins of tergites, still broader red hind margins of sternites, reddish spot on each side of tergites 2 and 3, mostly reddish pleurae and rather long, yellowish red or red legs; antennal joint 3 conical, distinctly curved, its style stoutish, long, quite or even slightly longer than half length of joint; collar above, hairs on pleurae, extreme sides of abdomen, on venter and even intermixed ones on sides of face gleaming pale golden; scaling on head in front and thorax above yellowish. From *pallidipes* and *jubatipes* it differs in the more extensive red on head in front, curved third antennal joints, longer style, relatively longer legs, paler tibiae, more strongly developed basal tooth of claws, the backward extension of the yellowish brown infuscation in wings

which does not tend to be interrupted and an infuscation in first posterior cell which is more extensive, occupying a little more than basal half of the cell. From the ♀ of *dux* it may at once be distinguished by the lower vein of discoidal cell which is not bent outwards to a marked extent; longer style, paler legs and paler tibiae, much broader red hind margins of tergites, less numerous or fewer black bristles or hairs on pleurae and hinder part of venter, distinctly sparser and shorter black hairs on sides of abdomen, broader whitish band across base of tergite 2 and more numerous or denser whitish scaling discally on 4 and 5.

From 5 ♀♀ (type in the Transvaal Museum, paratypes in the South African Museum and Commonwealth Institute).

Length of body: about $15\frac{1}{2}$ –17 mm.

Length of wing: about 17–18 mm.

Locality: Southern Rhodesia: Sawmills (Stevenson, 1 April 1923) (type); Matetsi (Stevenson, April 1934); Matopo Hills (Ogilvie, April 1932). Bechuanaland: Mestimaklaba (Vernay-Lang, Kal. Exp., 7–12 March 1930).

Exoprosopa dux (Wied.)

(Wiedemann, p. 269, *Aussereurop. Zweifl. Ins.*, i, 1828 (as *Anthrax*); Paramonow, p. 82, *Acad. d. Sc. d'Ukraine*, No. 9 (*Trav. Mus. Zool. Kiev*, No. 11), 1931; Hesse, p. 400, *South African Animal Life*, ii, 1955.)

(Syn. = *seniculus* Wiedemann, p. 270, *Aussereurop. Zweifl. Ins.*, i, 1828 (as *Anthrax*); Paramonow, pp. 82 and 83, *Acad. d. Sc. d'Ukraine*, No. 9, 1931.)

(Syn. = *ignava* Loew, in part, p. 232 and tab. ii, fig. 31, *Dipt. Faun. Südaf.*, i, 1860; Ricardo, p. 98, *Ann. Mag. Nat. Hist.*, (7), vii, 1901; Bezzi, p. 154, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 278, *The Bombyliidae of the Ethiopian Region*, 1924; Paramonow, in part, p. 82, *Acad. d. Sc. d'Ukraine*, No. 9, 1931.)

(Syn. = *dilatata* in part, Bezzi, p. 157, *Ann. S. Afr. Mus.*, xviii, 1921.)

Concerning the identity of this species, especially the female, there is almost chaotic confusion. Notwithstanding the fairly good illustration of the ♂ of *heros* by Wiedemann (p. 265 and tab. iii, fig. 3, *Aussereurop. Zweifl. Ins.*, i, 1828), Bezzi identified certain forms of the ♂-*heros* as the ♂ of *dux* (see under *heros*) and as a result of this error in identification he was unable to recognize the true identity of the ♂-*dux* in his various contributions. Paramonow who in 1931 (loc. cit.) examined the type material of *dux* s. str. compared its dimidiolate wing-pattern with that of the ♂ of *dimidiata* Macq. and in so doing provided a cue for the diagnosis of the species. Being unacquainted with the true *dux* Bezzi further described a number of ♂-specimens with a dimidiolate wing-pattern, resembling that of *dimidiata*, as *dilatata*. A careful comparison of some dimidiolate-winged ♂♂ from the Cape, Basutoland and the Orange Free State, including some specimens labelled as *dilatata*, in the collections before me with Wiede-

mann's description of *dux*, however, proves that there is very little doubt that these ♂♂ are in fact identical with the *dux* of Wiedemann. From some of the same localities are certain ♀♀ which have a slightly more extensive and broader dimidiate wing-pattern, but in addition have a backward, hook-like extension across apical part of discoidal cell. As this type of wing-pattern is only present in ♀♀ and as the ♀♀ agree in all other respects with the ♂-*dux* there is no doubt whatever that they represent the ♀♀ of *dux*. These ♀♀ also agree in all respects with Wiedemann's description of *seniculus*. The conclusion that the *seniculus* of Wiedemann is the ♀ of his own species *dux* is therefore unavoidable. Moreover they also agree with Loew's description and figure of the wing of *ignava* and from Paramonow's comparative notes on the identity of *ignava*, it is quite evident that one of the two specimens he alludes to is the *ignava* s. str. (= *seniculus* (Wied.)) of Loew, whereas the other specimen which he more fully compared with *seniculus* is in all probability a ♀ of some form of *heros*. The species *dux* of Wiedemann, like *sigmoidea*, *pallidipes*, *jubatipes* and *rhodesiensis*, has a ♂ with a different wing-pattern from the ♀ and as a result of this sexual dimorphism the ♀ was described as a separate species by Wiedemann and subsequently as still another species by Loew. From all this, and as also stated under *sigmoidea*, it is apparent that the various ♀-specimens identified and referred to in literature as *seniculus* by Loew, Bezzi and myself have no specific relationship with the true *seniculus* (♀ of *dux*). It is also quite evident that Engel's *seniculus* (p. 509 and tab. xii, fig. 161, *Die Fliegen d. Pal. Reg.*, lief. 101, 1936) is a composite species composed of more than one species of which the Palaearctic forms most certainly do not belong to the *seniculus* of Wiedemann, but most likely to Paramonow's *lugens*. The South African or Natal forms to which Engel also refers under his *seniculus*, and in which according to him the wing-pattern of the ♂ is the same as that of the ♀, most likely belong to some form of Macquart's *hamata* or an allied species.

The species *dux* is characterized as follows:

Body mainly black; more than front half of frons, greater part of face (excepting a black streak of variable extent down sides), postalar calli, almost entire scutellum, sides of tergites 2 and 3 broadly, especially in ♂, broad hind margins of sternites or in some ♂♂ entire venter, middle parts of pleurae to a variable extent and the legs reddish brown or reddish. *Vestiture* with all the hairs on head in front, across hind part of collar above, along notopleural part, intermixed ones in lower part of mesopleural tuft, on mesopleuron, prosternal part, hinder part of metapleural tuft, thoracic and scutellar bristles, dense hairs on sides of abdomen from tergite 2, coxal bristles and most of the hairs on hinder part of venter black; collar above, upper part of mesopleural tuft, greater part of propleural tuft, intermixed hairs on pteropleuron and anterior part of metapleural tuft yellowish; tuft on sides of tergite 1, plumula and hairs on basal half of venter more whitish; scaling on head in front relatively sparse, golden yellowish; streak on sides of thorax conspicuous and whitish; fine scales on thorax above in three streaks of golden or yellowish ones separated

by dark ones; hinder part of thorax and scutellum with longish, whitish, hair-like scales or hairs; scaling on abdomen above composed of a faint or narrowish band of pale or whitish scales across base of tergite 2 (the sides whiter), broad, complete bands of white ones across 3, 6 and 7, a patch of white ones on sides, or a more or less broadly interrupted or sparse band across 4 and 5, and of black scales broadly across hinder half of tergite 2, hinder part discally of 3, more or less discally across 4 and 5 (not occupied by white ones) and across narrow hind margins of 6 and 7; scaling on venter mostly whitish on sternites 2 and 3, darker or more yellowish and sparser ones on rest and intermixed dark ones on 4 and 5; scaling on legs mainly dark. *Wings* dimidiately infuscated dark blackish brown in ♂ as in ♂ of *sigmoidea* or *dimidiata*, the infuscation extending from about or just before middle of axillary lobe irregularly across to first vein at a point a little beyond middle of distance between base of third vein and end of false vein in costal cell, the margin of infuscation slightly indented at base of discoidal cell; infuscation in ♀ similar up to middle cross vein, from there occupying entire anterior part to level of submarginal cross vein and extending backward as a hook-like extension across apical part of discoidal cell and base of second posterior cell, its apical margin indented across apical part of enclosed submarginal cell; praediscoidal spot relatively large, quadrangular; lower vein of discoidal cell roundly projecting into third posterior cell; apical vein of discoidal cell usually S-curved, occasionally less so and sometimes with a stump projecting into discoidal cell; squamae dark-fringed and halteres brownish or dark brownish. *Antennae* with joint 3 elongate-conical, its style less than half, or in ♂ much less than half, length of joint. *Hypopygium* of ♂ (text-fig. 249, left) with dense, stoutish hairs on dorsal apical half of basal parts; no spines or processes near base of projecting aedeagus on dorsal aspect of aedeagal apparatus; ventral aedeagal process flattened, recurved, hook-like apically; lateral struts and basal strut well developed, the latter roughly racket-shaped.

In the Albany, British, Durban, Transvaal and South African Museums, in the Commonwealth Institute, and in the Zoological Institute of the University of Lund.

Length of body: about 13–18 mm.

Length of wing: about 14–19 mm.

Locality: South and South-eastern Cape, Basutoland and the Orange Free State.

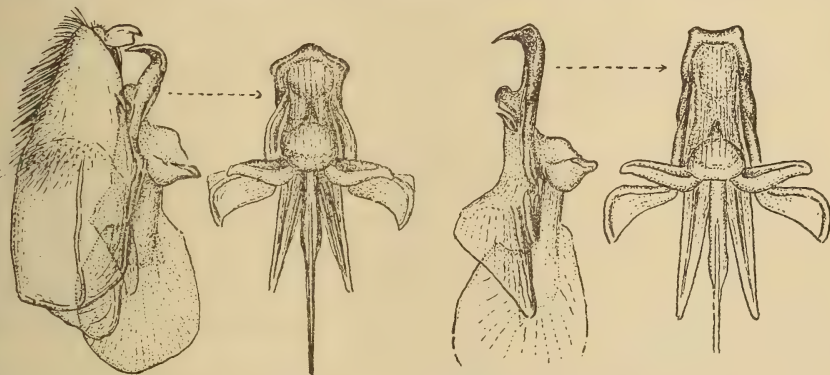
The species is variable to a certain extent and two ♂♂ from Aliwal North and the Orange Free State differ from the more typical form in having complete and denser white bands across tergites 4 and 5, a more conspicuous white band across base of 2, more extensive black on sides of face, a longer style, a straighter margin to infuscation in wings which is not or scarcely indented at base of discoidal cell, a shorter, less S-curved apical vein of discoidal cell and a distinct stump projecting into discoidal cell from base of second posterior cell. In some of these characters they agree with the next species with which they appear to form a connecting link.

Exoprosopa morosa Lw.

(Loew, p. 232 and tab. ii, fig. 30, *Dipt. Faun. Südaf.*, i, 1860; Bezzi, in part, p. 153, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, in part, p. 278, *The Bombyliidae of the Ethiopian Region*, 1924; Paramonow, p. 82, *Acad. d. Sc. d'Ukraine*, No. 9 (*Trav. Mus. Zool.*, No. 11), 1931.)

(Syn. = *dilatata* Bezzi, p. 157, *Ann. S. Afr. Mus.*, xviii, 1921.)

As in the case of *dux* the conspecificity of the two sexes of this species was also not suspected, but in this case the ♂ which is very much similar to that of *dux* was described as a separate species (*dilatata*) by Bezzi. As in the case of *dux*



TEXT-FIG. 249. Left: Side view of hypopygium and ventral view of detached aedeagal apparatus of ♂ *Exoprosopa dux* (Wied.). Right: Side and ventral views of more than front half of aedeagal apparatus of ♂ *Exoprosopa morosa* Lw.

there is no doubt whatever that these ♂♂ (*dilatata*) with dimidiate wing-pattern are the ♂♂ of the ♀-*morosa*, agreeing with the latter in all other specific characters. Moreover the late Mr. Bell-Marley of Natal caught the two sexes copulating.

The species differs from *dux* in having no bands of white scales across base of tergite 2 and across 4 and 5; in having those on 6 and 7 medially often interrupted; a dark and not pale or white streak on sides of thorax; more numerous or more extensive black hairs on pleurae, in metapleural tuft and venter; mainly black scaling on venter; black on sides of face more extensive; a distinctly longer style which is usually more or much more than half length of joint 3; a relatively shorter apical vein of discoidal cell which is less S-curved; less produced apical part of discoidal cell; a characteristic stump or indication of one from lower vein of discoidal cell projecting into the cell; margin of infuscation in wings in ♂ straighter, without an indentation at base of discoidal cell; a broader hook-like extension of infuscation in ♀ and margin of infuscation is less deeply indented in enclosed submarginal cell; and in having the aedeagal process of the hypopygium of ♂ (text-fig. 249, right) narrower and its apical recurved, hook-like part narrower and dorsal emargination of basal strut deeper.

In the Durban, Natal, Transvaal and South African Museums and the Commonwealth Institute.

Length of body: about 13–15½ mm.

Length of wing: about 16–18½ mm.

Locality: Natal, Zululand, Transvaal and Portuguese East Africa.

This species appears to replace *dux* in the subtropical and eastern parts of Southern Africa.

Exoprosopa hamata (Macq.)

(Macquart, p. 79 and tab. 15, fig. 2, *Dipt. Exot.*, ii, 1840 (as *Litorrhynchus*).)

(Syn. = *elongata* Ricardo, p. 98, *Ann. Mag. Nat. Hist.*, (7), vii, 1901; Bezzi, p. 154, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 291, *The Bombyliidae of the Ethiopian Region*, 1924.)

There is no doubt whatever that Ricardo's *elongata* is a synonym of Macquart's *Litorrhynchus hamatus* as I first pointed out in 1955 (p. 400, *South African Animal Life*, ii). Both Macquart's rather short and unsatisfactory description of the species and his illustration of the entire insect support this conclusion. It, however, belongs to the genus *Exoprosopa* and not to *Litorrhynchus* and can be fitted into the *dux* and *sigmoidea* (olim *seniculus*) section of the former. It is characterized as follows:

Body, including entire abdomen in most cases and legs, mainly black; genal part of face below antennae and broadish buccal margin of face on sides yellowish; hinder half of scutellum, spots on sides of tergites 2 and 3 in some ♂♂ and in ♂ broadish hind margins of sternites or basal half of venter reddish or yellowish red. *Vestiture* with all the hairs on head in front, fine hairs on thorax above, on sides of thorax, thoracic and scutellar bristles, fairly dense hairs on sides of abdomen apically on tergite 2 and apically from 3, hairs on lower part of mesopleuron, those on sternopleuron, anterior lower part of propleural tuft, bristly hairs on coxae and hairs across last sternite black; collar above, dense upper part of mesopleural tuft, upper part of pteropleural tuft, entire or greater part of metapleural tuft, some hairs in propleural tuft pale yellowish or yellowish; plumula and tuft at base of abdomen and small tuft at base of tergite 3 on sides whitish or cream-coloured; hairs on venter also whitish or sericeous yellowish; scaling on venter mostly pale, whitish or greyish white, but with gleaming dark or black ones across bases of sternites and on sides, especially on sides posteriorly in ♀; scaling on head gleaming pale brassy yellowish to greyish yellowish, but with intermixed gleaming black ones discally on frons anteriorly and discally on face; that behind eyes silvery whitish; scaling on thorax above mainly gleaming black or dark, with streaks of yellowish ones and yellowish ones basally and on hinder part of scutellum; scaling on abdomen above composed of gleaming black and white ones, the

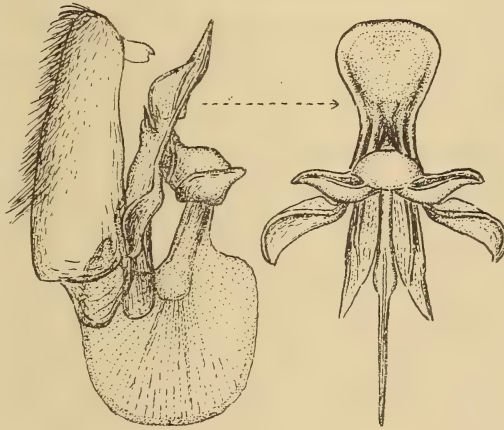
latter arranged as patches on sides of tergites 2 and 3 and sometimes 5, as a broadish band across base of 4 (more often interrupted discally) and broadly across 6 and 7 (often also interrupted discally); scaling on legs gleaming black, yellowish on coxae and pleural parts. *Wings* with a more or less constant and characteristic pattern (as shown in pl. ii, fig. 5), consisting of a very dark blackish brown infuscation occupying basal and anterior half up to base of marginal cross vein and with a clear indentation extending from posterior hyaline part into discoidal cell, but not reaching hind margin of wings and slightly variable in width; clear parts in wings hyaline and also extending round hind border of axillary lobe; discoidal cell subacute apically, its apical vein only slightly S-curved; middle cross vein usually a little before middle of discoidal cell; knobs of halteres yellowish. *Antennae* with joint 3 conical, its style yellowish, slender, longish, usually more than half length of joint. *Legs* with the front ones slender, their tibiae non-spiculate. *Hypopygium* of ♂ (text-fig. 250) with the ventral aedeagal process much broadened and flattened apically, spathulate; lateral struts well developed; basal strut comparatively broad as shown on left.

In the Albany, British, Natal, Transvaal, Rhodesian and South African Museums, in the Commonwealth Institute, and Zoological Institute of the University of Lund.

Length of body: about 10–13½ mm.

Length of wing: about 11–14 mm.

Locality: South-eastern Cape, Natal, Zululand, Transvaal and Southern Rhodesia.



TEXT-FIG. 250. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa hamata* (Macq.).

Exoprosopa heros-section

Differences between the wing-infuscation of ♂♂ and ♀♀ are slightly less developed in representatives of this section than in the preceding *dux*-section. The hook-like backward extension across apical part of discoidal cell of the anterior infuscation in wings of the ♀♀ are usually developed to a variable extent in some ♂♂ also, though in most cases all that remains of this hook or extension is an isolated spot, cloud or small infusion at base of second posterior cell. The main anterior infuscation too is usually more diffuse, with its margin less well marked off, more blurred.

Exoprosopa heros (Wied.)

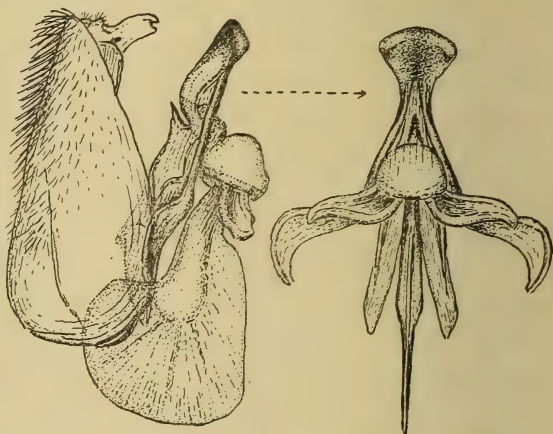
- (Wiedemann, p. 265 and tab. iii, fig. 3, *Aussereurop. Zweifl. Ins.*, i, 1828 (as *Anthrax*); Loew, p. 234 and tab. ii, fig. 33, *Dipt. Faun. Südaf.*, i, 1860; Bezzi, p. 156, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 279, *The Bombyliidae of the Ethiopian Region*, 1924; Paramonow, p. 80, *Acad. d. Sc. d'Ukraine*, No. 9, 1931; Hesse, p. 401, *South African Animal Life*, ii, 1955.)
- (Syn. = *caffra* Macquart, p. 48 and tab. 18, fig. 9, *Dipt. Exot.*, ii, 1840.)
- (Syn. = *seniculus* Loew, nec Wiedemann, Note 1, p. 235, *Dipt. Faun. Südaf.*, i, 1860.)
- (Syn. = *dux* Bezzi, nec Wiedemann, p. 156, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 279, *The Bombyliidae of the Ethiopian Region*, 1924.)
- (Syn. = *loewiana* Bezzi, p. 156, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 86, *Broteria* (ser. Zool.), xx, fasc. ii, 1922; Bezzi, p. 279, *The Bombyliidae of the Ethiopian Region*, 1924.)
- (Syn. = *ignava* Paramonow, in part, nec Loew, p. 82, *Acad. d. Sc. d'Ukraine*, No. 9, 1931.)

This species which is one of the commonest of the larger South African species of *Exoprosopa* and which is almost restricted to the Cape Province, is very variable and occurs as several local or regional forms or varieties in various parts of the Province. Both sexes of these forms show differences in the intensity or extent of the infuscation and the spots or clouds in the wings, the extent of the reddish on the frons and face and to a certain extent also slight differences in the colour of the pale hairs and pale scaling on the body. As a result of this local and regional variation and the markedly distinct to only slight sexual differences in the infuscation of the wings, both ♂♂ and ♀♀ have been separately referred to different species or have even been described as separate species. To this latter category belong the *caffra* of Macquart and *loewiana* of Bezzi, both of which without doubt are to be considered as synonyms of *heros*; though Bezzi's species practically exists only as a name, for apart from short descriptive references to it, it was never properly or fully described. Included in the list of synonyms are also the erroneous identifications of various authors who were not acquainted with the species itself or with its tendency to vary. Loew himself the first of these authors, was not quite certain about the true identity of *seniculus* s. str. (♀ of *dux*) and after describing that species as *ignava* stated further on under his description of the ♀ of *heros* that he believed the *seniculus* of Wiedemann to be identical with *heros*. Subsequently Bezzi, being unacquainted with the true identity of both the ♂ of *heros* and that of *dux*, identified all forms of the ♂-*heros*, in which the spot at the base of the second posterior cell was absent or faint, as *dux*. On the other hand and more recently Paramonow who had access to Loew's original material and probably as a result of an earlier confusion either on the part of Loew himself or on the part of the Berlin Museum mistook one of the specimens, obviously some ♀-form of *heros*, for the real *ignava*

of Loew which he believed to be the original type and which he compared with *seniculus*, though at the same time correctly assigning the real *ignava* as a synonym of *seniculus*. The characters of the species as a whole, as based on a very large number of specimens of both sexes in the collections before me, are as follows:

Body mainly black; anterior part or half of frons, greater or entire part of face reddish, or only sides anteriorly of frons and sides of face below antennae as well as sides or extreme sides of face below reddish or yellowish to a variable extent; postalar calli, greater part of scutellum, sides of tergites 2 and 3 very broadly to a variable extent, more so in ♂ and in some forms, hind margins of tergites to a variable extent, sometimes broadly, but often scarcely evident, either the entire venter, in ♂ especially, or entire sides and base of it, or only the sides or hind margins of sternites very broadly (excepting only medially on 4 and 5) and sutural parts of pleurae to a variable extent reddish; legs pale yellowish, yellowish reddish, reddish brown to even dark reddish brown or piceous brown, the apical parts of femora and the tibiae usually darker, sometimes even black. *Vestiture* with the hairs on head in front more often entirely black, sometimes with some yellowish or golden ones or intermixed ones on extreme sides of face, but sometimes predominantly golden or reddish golden on sides of frons anteriorly and on sides of face in some Namaqualand forms; collar above and hairs on pleurae, excepting a variable number of dark or intermixed black ones on mesopleuron and sternopleuron in some cases, entirely yellowish to deep golden yellowish, becoming more whitish on sternal parts and usually with deep golden or reddish golden bristly hairs intermixed on mesopleuron; metapleural tuft entirely yellowish or yellowish whitish, sometimes however with some dark hairs in hinder part; plumula, tuft on sides of tergite 1 and base laterally of 2 whitish; hairs on venter pale, whitish or pale sericeous yellowish, becoming more golden or even reddish golden posteriorly, except on last sternite in ♀ which is usually black or dark-haired; hairs across hind part of collar above, notopleural hairs and bristles, fine hairs on thorax and scutellum above, bristles on thorax and scutellum, fairly dense hairs on sides of abdomen and bristly hairs on coxae black; scaling on head in front greyish yellowish to yellowish; that on thorax above in three whitish, greyish or yellowish streaks, separated by dark ones, the streak on sides straw-coloured to whitish; scaling on abdomen above composed of conspicuous bands of white ones across base of tergite 2, across more than hind half of 3, across 6 and 7 and across sides of 4 and 5, the rest of hinder halves or parts of 4 and 5 discally with more yellowish scaling, less yellowish in some ♂♂, with yellowish scaling also across hind margin of white band across tergite 2 and narrowly across base of 3, the rest of scaling across more than hind half of 2 (excepting only a few intermixed pale ones) and across basal parts of 3, 4, and 5 black; scaling on venter mainly whitish, those in a transverse, central patch basally on sternites 4 and 5 usually darker or black to a variable extent, these patches sometimes brownish or yellowish-scaled and in some forms sternites 4 and 5 entirely yellowish-scaled, but darker in centre; scaling on legs greyish yellowish to yellow, becoming dark

or blackish apically above on femora and tibiae. *Wings* in ♂ (pl. iii, fig. 5) dimidiately infuscated pale yellowish brownish to dark brownish, the hyaline part faintly greyish hyaline, the infuscation in anal and axillary cells of variable intensity, extending obliquely across bases of fourth and third posterior cells to a little beyond middle cross vein and then across to second vein and then obliquely across to opposite end of false vein and either without or with a faint or distinct cloud of variable extent on apical vein of discoidal cell at base of second posterior cell and in some of the montane forms this cloud may even be connected with the main anterior infuscation by a fuscous border along upper apical part of discoidal cell as in ♀ and indications of faint spots may also be present on bases of apical two cells; infuscation in ♀ (pl. iii, fig. 6) similar but slightly more extensive and hyaline part even more greyish, the infuscation extending broadly to or near to submarginal cross vein and across from a little beyond end of false vein to apex of discoidal cell and as a backward extension of variable intensity across apex of discoidal cell to form a large cloud or spot at base of second posterior cell which in some forms may even be isolated as in ♂; praediscoidal spot conspicuously large; discoidal cell in both sexes characteristically dilated apically, more so in ♂, its lower vein bulging or roundly or even subangularly bent outwards into third posterior cell; middle cross vein at about or distinctly beyond middle of discoidal cell; apical vein of discoidal cell slightly or fairly deeply S-curved, sometimes however almost straight, the curve at base of second posterior cell usually deeper or more distinct; squamae yellowish to yellowish brownish or even brown, pale to dark-fringed. *Antennae* with joint 3 elongate-conical, sometimes a little curved outwards, its style relatively short, stoutish, very much shorter than half length of joint. *Hypopygium* of ♂ (text-fig. 251) with the ventral aedeagal process shaped as in figures, resembling that of *sigmoidea* (cf. text-fig. 248, left); lateral struts and basal strut well developed.



TEXT-FIG. 251. Side view of hypopygium and ventral view of detached aedeagal apparatus of ♂ of typical *Exoprosopa heros* (Wied.).

In the British, Transvaal and South African Museums and in the Commonwealth Institute and Zoological Institute of the University of Lund.

Length of body: about 9–18 mm.

Length of wing: about 10–18 mm.

Locality: Entire Cape Province into Southern parts of South-West Africa and Bechuanaland.

The more conspicuous forms of *heros* are separated in the key to the species of *Exoprosopa*. Some of these are so distinct that varietal names may be given to them, but as transitional forms also occur, such names may only lead to confusion. Three forms dealt with below, however, merit separate varietal names because they show certain distinct characters which distinguish them from all the other less well-defined forms.

Exoprosopa heros form litoralis n.

This is apparently a distinct form or variety occurring in the sandy parts along the western coastal part and which differs from other less well-defined forms in the following combination of characters:

Body with the red on sides of frons anteriorly more obscure or absent, the entire frons tending to be black; face discally tending to be more extensively or more distinctly black; legs appearing dark or black, due to predominant black or dark gleaming scales. *Vestiture* with distinctly more numerous or even dense black bristly hairs intermixed in pale mesopleural tuft and on pteropleuron, with more numerous black hairs also in hinder part of metapleural tuft, on front coxae, sternal part, on hinder part or half of venter and usually also with a few or some black or dark hairs in lower anterior part of propleural tuft; black scaling on body above, especially abdomen, on the whole more extensive and, apart from the usual bands of white ones, with fewer or less extensive yellowish or greyish yellowish ones across tergites 4 and 5 and 2. *Wings* with the infuscated parts distinctly darker, very dark blackish brown or black, thus more defined; entire anal and axillary cells, excepting only extreme apex of anal cell, uniformly dark; spot at base of second posterior cell in ♂ distinct and hook-like infusion along apical part and apical vein of discoidal cell more conspicuous, more like that of ♀-*sigmoidea* or *hamata*; bases of two apical cells without even an indication of spot-like infusions.

From 16 ♂♂ and 26 ♀♀, including the types, in the South African Museum.

Length of body: about 9–14 mm.

Length of wing: about 9–13 mm.

Locality: Namaqualand: Wallekraal near coast between Garies and Hondeklip Bay (Mus. Exp., Oct. 1950).

Exoprosopa heros form protuberans Bezz.

(Bezzi, p. 298 and fig. 29 (nec 30), *The Bombyliidae of the Ethiopian Region*, 1924 (as a distinct species); Hesse, p. 27, *Mem. do Museu Dr. Alvaro de Castro*, No. 1, 1950.)

From Bezzi's description of the wing of this form it is quite obvious that he confused figures 29 and 30 on pp. 297 and 298 (loc. cit.) and that fig. 29

(not 30) portrays the wing of this form. Moreover the wing is that of a ♂ and not a ♀. As the ♂♂ and ♀♀ before me agree more or less with Bezzi's description of *protuberans* and as a ♂ in the Rhodesian Museum has been labelled as such by Brunnetti, these specimens are referred to *protuberans* as I have already stated in my paper on the Bombyliid-material of the Museu Dr. Alvaro de Castro at Lourenço Marques. As stated in that paper (loc. cit.) this form is apparently the northern and subtropical representative of the Cape species from the various forms of which it differs in having the anterior part of the frons and entire face more constantly reddish; prosternal part of propleural tuft, all the bristles and scales on coxae, mesosternal hairs, more numerous intermixed hairs on meso- and sternopleurae black and not pale; collar above, upper part of mesopleural tuft and metapleural tuft deeper or more golden or orange yellowish; scaling on extreme sides basally of abdomen above more brownish or golden yellowish; that on sternites 4 and 5 also more yellowish and the yellowish scaling on abdomen above deeper ochreous yellowish; that across middle of tergite 2 and the other non-white pale scaling sometimes very deep ochreous yellowish or golden; legs darker, black-scaled; chocolate-brownish infuscation in wings in ♀♀ less extensive, not reaching submarginal cross vein as in typical ♀-*heros*; and the hypopygium of the ♂ which differs only in having the basal strut slightly narrower and less broad along ventral edge.

In the British, Transvaal, Rhodesian and South African Museums and the Museu Dr. Alvaro de Castro.

Length of body: about 12-15½ mm.

Length of wing: about 12-15½ mm.

Locality: Natal, Zululand, Transvaal, Southern Rhodesia and Mozambique.

Some of the forms from these regions which Bezzi determined as *heros* probably belong to this form. The ♂-specimen from the Transvaal which Ricardo determined as *dux* (p. 99, *Ann. Mag. Nat. Hist.*, (7), vii, 1901) probably also belongs to this form of *heros*. It may also be confused with *eluta* Lw. from which, however, it differs in having less black hair on pleurae, less extensively, not entirely, dark-scaled sternites 4 and 5, more extensive infuscation in wings in both sexes and presence of a distinct or even large spot at base of second posterior cell.

Exoprosopa heros form *melanthia* n.

Two ♀-specimens in the collections before me differ from the ♀ of what I take to be *heros* form *protuberans* Bezz. in some important respects which cannot be considered only of transitional value. They differ in having the greater medial part of frons anteriorly and the medial discal part of the face dark or black and with predominant black or at least much dark scaling on these parts; entirely black abdomen and even the sternites entirely or mainly black; much darker or black legs which are predominantly black-scaled; scaling on thorax above discally mainly black and not in streaks of yellowish and brownish ones, only the streak on sides conspicuously yellowish white; scaling across tergites 4 and 5 discally mostly dark or at least with fewer or sparser pale ones; scaling across

entire basal halves of sternites 4 and 5 black; hairs and also hair-like scales on meso- and sternopleurae entirely black or with more black and fewer golden ones intermixed and with more black scales across bases of sternites 4 and 5; and wings more smoky brownish, their clear parts also more smoky hyaline, the veins darker and scaling on basal comb black, not yellowish.

Type in the South African Museum.

Length of body: about 14–16 mm.

Length of wing: about 14–16 mm.

Locality: Eastern Transvaal: Sabie (Zumpt, Jan. 1952). Southern Rhodesia: Widdecombe in Salisbury Dist. (Whellan, 26 Oct. 1947) (type).

Exoprosopa damarensis n. sp.

Two specimens of this species have been wrongly labelled as *heros*. From the latter species this species differs in having predominantly or entirely black hair on lower parts of pleurae; an entirely black metapleural tuft or with at least its lower part black; the collar, upper part of mesopleural tuft and tuft on sides of abdomen basally deep yellowish or almost orange yellowish; pale scaling across base of tergite 2 absent or very poorly developed, this scaling being usually dark or black; white band across tergite 3 relatively broader, but with relatively much fewer whitish scales across discal parts of 4 and 5 where black ones predominate; legs darker due to black scaling; more than front half of frons and entire face more extensively and constantly yellowish brownish or reddish; infuscation in wings darker, more chocolate-brownish or coffee-brownish which does not differ much in the two sexes and which is also darker and well defined in more than basal halves of anal and axillary cells; middle cross vein tending to be at about or even a little before, not beyond, middle of discoidal cell. From *heros* form *protuberans* it differs in having mostly dark scaling across base of tergite 2 and across discal parts of 4 and 5, much black hair in metapleural tuft, predominantly black hairs on lower pleurae, more coffee-brownish infuscation in wings, broader reddish on sides of tergites 2 and 3 and much more extensive reddish on head in front.

From 1 ♂ and 2 ♀♀ (types in the South African Museum).

Length of body: about $14\frac{1}{2}$ – $16\frac{1}{2}$ mm.

Length of wing: about $14\frac{1}{2}$ – $16\frac{1}{2}$ mm.

Locality: South-West Africa: Otjituo (Tucker, Jan. 1920) (holotype); Outjo (Mus. Exp., Jan. 1925) (allotype); Gaub (Tucker, Dec. 1919).

Exoprosopa eluta Lw.

(Loew, p. 227 and tab. ii, fig. 25, *Dipt. Faun. Südaf.*, i, 1860; Bezzi, p. 156, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 279, *The Bombyliidae of the Ethiopian Region*, 1924.)

This species may almost be taken as still another South-eastern tropical representative of *heros*. It, however, differs from the various forms of *heros* in having the face relatively, though distinctly, shorter and narrower; sides and

front part of face reddish brown; less red or even without any red on sides of tergites 2 and 3; distinctly darker, more blackish brown or very dark blackish red legs which are black-scaled; a tuft of black hairs on prosternal part and more numerous or even predominantly black hairs intermixed on meso- and sternopleurae and, especially in ♂, black hairs in hind part of metapleural tuft; dark or black hairs also present on hind half of venter; relatively narrower bands of yellowish scales across tergites 4 and 5 and scaling on sternites 4 and 5 much darker or black, contrasting much with the more snow-white ones on sternites 2 and 3 and greyish ones on 6 and 7; less extensive infuscation in wings in both sexes, which tends to become fainter towards its limits, especially in ♀, which in ♂ does not extend much beyond middle cross vein and in ♀ resembles that of a ♂-*heros* rather than a ♀, with only the extreme bases of anal and axillary cells tinged, without a spot at base of second posterior cell in ♂ and a fainter one in ♀ than in *heros*; discoidal cell characteristically dilated rather bulbously apically, its apical vein relatively shorter than in *heros*, not or only slightly S-curved, more curved at base of second posterior cell; middle cross vein usually or more often before middle of discoidal cell; second posterior cell relatively shorter and less contorted; and in having the broadened apical part of ventral aedeagal process of hypopygium not slightly curved dorsally at apex and in having relatively smaller and shorter lateral struts.

In the British, Rhodesian, Transvaal and South African Museums.

Length of body: about 8–13½ mm.

Length of wing: about 8½–13½ mm.

Locality: South-eastern Cape, Natal, Zululand, Transvaal and Southern Rhodesia.

Exoprosopa monticola n. sp.

Body black; front half of frons and greater part or entire face or sides of frons anteriorly and face (excepting a dark discal streak or infusion of variable extent on face), greater part of scutellum, sometimes sides of tergites 2 and 3 in ♀ very obscurely to a variable extent, sometimes narrow hind margins of posterior tergites in ♂, hind margins of sternites, more broadly in ♂ and in some ♂♂ even greater part of venter yellowish reddish; sutural parts of pleurae sometimes reddish brown; legs yellowish brown. *Vestiture* with the hairs on head in front, hinder part of collar above, fine ones on thorax above, notopleural bristles, thoracic and scutellar bristles, numerous hairs on meso-, sterno- and pteropleuron, sometimes a few on prosternal part, a few or many in hinder part of metapleural tuft, relatively very dense hairs on sides of abdomen from apical half of tergite 2, most of the hairs on sternites 4–7 and coxal bristles black; collar above, upper part of mesopleural tuft, propleural tuft, anterior part or even entire metapleural tuft yellowish; those on sides of abdomen at base and on sternites 1–3 whitish; some on sides of sternites 4 and 5 or sometimes in ♂ those farther posteriorly gleaming more yellowish or golden; scaling on head in front yellowish or golden; streak on sides of thorax above whitish to yellowish, rest of fine scaling on thorax in streaks of dark and yellowish or golden ones;

scaling on abdomen above composed of white, yellowish and dark ones, the white ones as a conspicuous band across base of tergite 2, a fairly broadly interrupted white band across 3, more often only as an elongate patch on sides, some white ones on extreme sides of 4 (often wanting), a complete band across 6 and 7, some sparse yellowish ones narrowly across base of 3 and black scaling on rest of abdomen above; scaling on sternites 1-3 conspicuously snow-white, that on 4 and 5 mostly dark or black medially in ♂, that posteriorly more greyish whitish; scaling on legs mostly dark, gleaming greyish in certain lights. *Wings* with the yellowish brownish infuscation like that of *eluta*, the dimidiate infuscation in ♂ less extensive than in ♀, extending across to opposite end of false vein only a little beyond middle cross vein and usually with only a very faint cloudiness or spot at base of second posterior cell; infuscation in ♀ a little more intense in anal cell and extending across some distance beyond middle cross vein to opposite end of false vein, being more extensive in marginal cell, basal half of enclosed submarginal cell and nearly basal half of first posterior cell, with an isolated, often faint, but constant cloud or spot at base of second posterior cell; discoidal cell in both sexes characteristically dilated rather bulbously apically, its apical vein relatively shorter than in *heros*, more like that of *eluta*, only slightly S-curved, constantly more curved at base of second posterior cell; second posterior cell tending to be less contorted than in *heros*; middle cross vein more distinctly at about middle of discoidal cell. *Antennae* with joint 3 elongate-conical, its style rather stoutish, very much shorter than half length of joint. *Hypopygium* of ♂ like that of *heros* and *eluta*, more especially the latter, differing however in that the broadened apical part of ventral aedeagal process is relatively or distinctly more produced on the sides.

From 14 ♂♂ and 15 ♀♀ (types in the South African Museum, paratypes in the British and Transvaal Museums).

Length of body: about 9-14½ mm.

Length of wing: about 9-14½ mm.

Locality: South-western and Southern Cape: Matroosberg, Ceres Div. (Lightfoot, Jan. 1917) (types); Ceres (Turner, Nov. 1920); Citrusdal (Mus. Exp., Nov. 1948); Paleisheuvel (Mus. Exp., Nov. 1948); Somerset West (Strand) (Brauns, Nov. 1925); Fransch Hoek (Wood, Dec. 1937); Rivier-sonderend (Barnard, Nov.-Dec. 1928); Schoemanspoort (Mus. Exp., Oct. 1938). Eastern Cape: Willow River, Cockscomb in Uitenhage Dist. (Mus. Exp., Oct. 1938); Uniondale Dist. (Mus. Exp., Oct. 1952).

This species is essentially a mountain form and is slightly variable in the extent of the red on the head in front and on sides of tergites 2 and 3 in ♂♂ and in the extent of the black hairs in the metapleural tuft and prosternal part. The paratypes from Citrusdal and Paleisheuvel differ from the more typical forms in having an entirely pale metapleural tuft, fewer black hairs on pleurae, more white scaling on posterior part of venter and sometimes with a few yellowish scales on tergite 4.

From the *heros* and *eluta*-series this species may at once be distinguished by the absence of pale scaling across tergites 4 and 5, more constantly interrupted

band across 3, more extensive dark scaling on sternites 4 and 5, less roundly and outwardly bulging lower vein of discoidal cell which itself is more subtruncate apically.

Exoprosopa atrata n. sp.

This species which is also restricted to the mountainous parts of the South-western and Southern Cape may almost be considered as an extreme form of *monticola* from which it, however, differs in the following respects.

Entire frons and face, excepting only extreme yellowish sides below the latter, black; abdomen above and below mainly black; legs darker, due to more extensive black scaling; greater hind part of collar above, humeral tuft, greater part or even entire mesopleural tuft or at least its dense lower part, more numerous or even entire lower part of propleural tuft, entire or greater part of metapleural tuft, sometimes all or most of the hairs on pleurae, those on sides apically and across tergite 1 and all hairs on hinder half of venter more extensively black, the yellowish hairs on these parts, if present, distinctly much fewer than in *monticola*; band of white scaling across tergite 3 more constantly represented only as a conspicuous white patch on extreme sides, without any pale scales on sides of 4; scaling on sternites 4 and 5 more constantly and extensively black and even posterior part with fewer greyish or pale scales, sometimes gleaming black; scaling on thorax and scutellum above mainly dark or black; relatively shorter wings, with the faint cloud at base of second posterior cell more constantly wanting in ♂ and even in ♀ sometimes fainter than in ♀ of *monticola*; hypopygium of ♂ with the lateral struts distinctly broader, more leaf-shaped and longer, with the basal strut also broader and more like that of *heros* and lateral angles of broadened apical part of ventral aedeagal process less produced.

From 10 ♂♂ and 7 ♀♀ (types and paratypes in the South African Museum, paratypes in the Rhodesian Museum).

Length of body: about 12–15½ mm.

Length of wing: about 11–14½ mm.

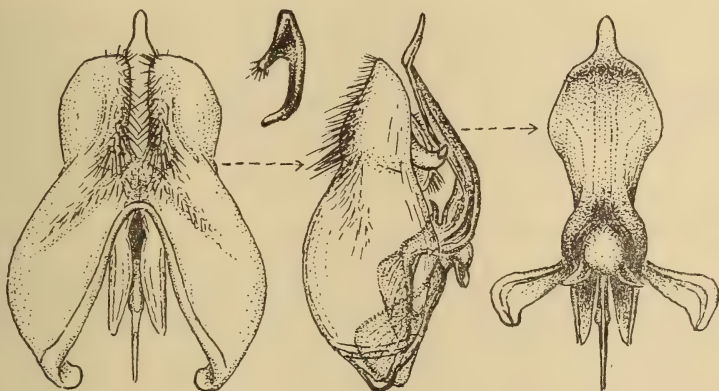
Locality: South-western Cape Mountains: Kleinmond (Wood, Jan. 1937) (types); Wemmershoek (Dickson, 27 Dec. 1946); Matroosberg in Ceres Div. (Lightfoot, Jan. 1917). Langeberge: Spitskop near Meiringspoort (Mus. Exp., Jan. 1935); Meiringspoort (Barnard, Feb. 1932).

Exoprosopa infumata Bezz.

(Bezzi, p. 155, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 295, *The Bombyliidae of the Ethiopian Region*, 1924.)

In the infuscation of its wings this species superficially resembles *heros* and forms of it, but it may at once be distinguished from the latter by the following characters:

Body with the abdomen entirely black even on sides and legs also darker or black. *Vestiture* with the hairs in lower part of mesopleural tuft, in propleural tuft, lower and hinder part of metapleurae and posterior half of venter mostly black; scaling on head in front relatively sparser, gleaming more brassy yellowish; thorax above with more dark scaling and pale yellowish streaks on sides more conspicuous; abdomen above with more dark scaling, without a conspicuous or complete white band across base of tergite 2, the pale ones discally across middle of 3 even more yellowish, narrower, and discal parts of 4 and 5 without any or only with very sparse yellowish scales; scaling on venter mainly or entirely dark, not whitish. *Wings* relatively narrower than in



TEXT-FIG. 252. Dorsal and lateral views of hypopygium, ventral view of detached aedeagal apparatus and above towards left dorsal view of right beaked apical joint of ♂ *Exoprosopa infumata* Bezz.

heros, with the anterior blackish brown infuscation slightly less extensive, more dimidiate, more sharply delimited, leaving greater part of axillary lobe and apical half of anal cell clear, with the cloud or spot at base of second posterior cell smaller in both sexes, usually or more often isolated or distinctly less broadly confluent with anterior infuscation; clearer parts of wings distinctly more tinged smoky; discoidal cell much less broadly dilated apically, less produced apically, its apical vein shorter, distinctly less S-curved; middle cross vein distinctly before middle of discoidal cell; second posterior cell distinctly less contorted, more quadrangular. *Head* relatively shorter, narrower, more conical; interocular space on vertex relatively much narrower than in *heros* and it is very much narrower than combined length of antennal joints 2 and 3 (excluding style). *Legs* with the front tarsi more slender, their hairs distinctly less dense and finer; hind tibiae with distinctly much sparser spicules and scales in outer upper part. *Hypopygium* of ♂ (text-fig. 252) entirely different from that of *heros* and its relatives; basal parts with the posterior dorsal gap extending much anteriorly (left-hand figure); beaked part of beaked apical joints slender,

rather long, curved outwards and upwards (second figure above); aedeagal process broad, shaped as shown in figures, its apex bent either at or almost at right angles to broadened part; lateral struts relatively small, much reduced, and basal strut more or less wedge-shaped, relatively small.

In the Transvaal, Rhodesian and South African Museums.

Length of body: about $10\frac{1}{2}$ –14 mm.

Length of wing: about 12–15 mm.

Locality: North-eastern Transvaal and Northern and Southern Rhodesia.

Exoprosopa nebulosa n. sp.

Body, including scutellum, mainly dark or black; buccal margin yellowish, broader lower down sides of face; extreme sides of tergites 2 and 3 and hind margins of tergites and sternites yellowish red; legs very dark reddish brown, entirely dark or black-scaled. *Vestiture* with the hairs on face in front entirely black, the scaling on head in front gleaming greyish whitish, that behind eyes silvery; hairs on mesopleuron, pteropleuron, along notopleurae, thoracic and scutellar bristles, fine hairs on disc of thorax, the not very dense hairs on sides of abdomen from apical part of tergite 1 and hairs on venter black; collar above, some hairs in upper part of mesopleural tuft, most or all the hairs in metapleural tuft and hairs at base of abdomen straw-coloured yellowish; scaling on thorax above greyish yellowish to dark, but gleaming dull yellowish, the streak on sides greyish; scaling across hind border of scutellum more greyish whitish; scaling on abdomen above dark discally, more greyish white to whitish or pale greyish yellowish on sides of tergites 2 and 3, across bases of 4 and 5 and across 6 and 7; scaling on venter mainly dark. *Wings* (pl. ii, fig. 6) extensively infuscated yellowish brownish up to base of marginal cross vein and across from end of costal cell to basal third of second posterior cell, leaving the apical part, apical part of enclosed submarginal cell, less than apical half of first posterior cell, apical two-thirds of second posterior cell clearer, more greyish hyaline, with also the apical half of discoidal cell and middle and apical parts of third and fourth posterior cells, especially in ♀, clearer to a variable extent (the clear part in discoidal cell appearing more spot-like), with the apical part of axillary lobe in ♀ also slightly clearer than in ♂; praediscoidal spot distinct, whitish; marginal cross vein, base of second apical cell and posterior veins bounding third posterior cell slightly bordered with fuscous; discoidal cell subacute or subtruncate apically, only slightly broadened beak-like apically, its apical vein substraight or only feebly S-curved; middle cross vein a little before middle of discoidal cell. *Head* with the frontal part rather narrowish; frontal depression rather conspicuous; antennal joint 3 elongate-conical, its narrower part rather stoutish, its style very short, conical, much shorter than joint 2; proboscis confined to buccal cavity. *Legs* with the front ones slender, its tibiae non-spiculate; front tarsi more hairy in ♀. *Hypopygium* of ♂ (text-fig. 253) with the outer part of beaked apical joints angularly prominent and the beak curved outwards and upwards;

aedeagal process broad, flattened; lateral struts strongly developed, broad; basal strut well developed, broad, racket-shaped.

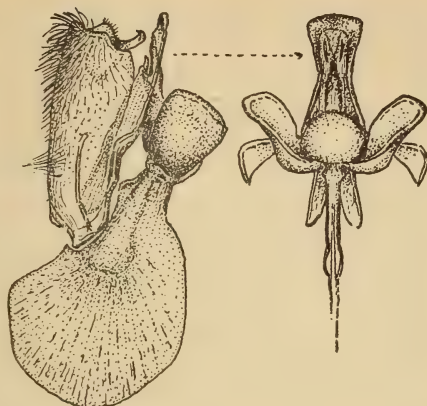
From a ♂ and a ♀ in the South African Museum.

Length of body: about 6–7 mm.

Length of wing: about $6\frac{1}{2}$ – $7\frac{1}{2}$ mm.

Locality: Kaokoveld in South-West Africa: Zesfontein (Mus. Exp., Feb. 1925).

The wing-infuscation has some superficial resemblance to that of some forms of *pterosticha* and also to that of some forms of *heros*, but other characters and the hypopygium of the ♂ are different.



TEXT-FIG. 253. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa nebulosa* n. sp.

Exoprosopa decipiens-section

The species *Exoprosopa decipiens* Bezz. was placed in the *nemesis*-group of the subgenus *Exoprosopa* by Bezzi, but as it differs from *nemesis* not only in the wing-pattern, but in other venational characters as well, it obviously cannot be included in the same section or group as the latter. Its wing-pattern, which is strikingly similar to that of *Litorrhynchus*, also resembles that of the Egyptian *Efftatoun-Beyi* Par. If wing-pattern be accepted as a criterion of a sectional or group status it should find a place in a section comprising such species as *Efftatoun-Beyi* Par. and possibly also *curvicornis* Bezz. and *senegalensis* Macq. which Bezzi referred to the *grandis*-group. As there are no other South African species resembling it, it is here appended to the end of the arbitrary *Defilippia*-group as a provisional section by itself of which the wing-characters and other features may be gleaned from the specific description given below.

Exoprosopa decipiens Bezz.

(Bezzi, pp. 277 and 287 and fig. 27, *The Bombyliidae of the Ethiopian Region*, 1924.)

This species, of which the wing-pattern cannot be confused with any other South African species of *Exoprosopa*, is characterized as follows:

Body black; greater part of frons from a little before front ocellus, greater discal part of face, excepting a large dark infusion on each side, genal parts, antennae, postalar calli, scutellum, propleural part, middle part of pleurae to a variable extent, sides and apical part of abdomen broadly (excepting tergite 1 and a central row of black, triangular spots from 2–6 decreasing in size and larger in ♀), entire or greater part of venter and legs yellowish reddish to

reddish brown. *Vestiture* with the hairs on head in front and on antennae black, the scaling dull yellowish whitish, yellowish behind eyes; collar above yellowish; hairs in upper part of mesopleural tuft, propleural and metapleural tufts fulvous reddish; hairs on thorax above, bristly ones on humeral tubercle and notopleural part, thoracic and scutellar bristles, hairs on more or less lower part of mesopleuron, some pteropleural bristles, a tuft of prosternal bristly hairs, some coxal bristles, the not very long hairs on sides of abdomen from apical half of tergite 2 and hairs across hind margin of last tergite black; plumula, tuft at base on sides of abdomen and hairs on venter white; scaling on thorax above yellowish to reddish brownish, separated by streaks of dark ones, the streak on sides slightly fulvous reddish, not very conspicuous; scaling on abdomen above black and white, the latter arranged across sides of basal halves of tergites 2-4, to a lesser extent on sides of 5 and across 6 and 7, more densely on latter, the posterior fringe of 6 and 7 black like the rest of scaling above; scaling on venter also black and white, the base and submedial parts on each side posteriorly white-scaled, but the medial part and extreme sides of sternites 4-7 black-scaled; scales on legs mostly pale. *Wings* (as figured by Bezzi, loc. cit.) relatively broad, the apex rather rapidly narrowed from end of costal cell, with an extensive dark blackish brown infuscation occupying most of the wings up to opposite end of costal cell and then across to end of first posterior cell on hind margin, leaving apex clear; apical margin of infuscation, however, showing two bays, one at base of first submarginal cell just before apical loop of second vein and the other opposite apical cross vein of enclosed submarginal cell; the infuscation, however, divided posteriorly by a clear indentation shaped much like that of *Litorrhynchus dilatatus* extending about half way or a little more into discoidal cell from a hind margin extending from base of fourth posterior cell to nearly half hind margin of third posterior cell; second part of main infuscation beyond the clear indentation very broad on hind margin; a clearer spot also present at apex of axillary lobe and slightly yellowish translucent spots also present at base of third vein, base of second vein and middle cross vein, at base of fourth posterior cell and obscurely at apex of first posterior cell; apical loop of second vein deep; first posterior cell, though sometimes acute apically, open apically; discoidal cell broader just beyond middle (where its lower vein is bent outwards near base of second posterior cell) than basally, produced and acute apically, its apical vein broadly S-curved; middle cross vein much before middle of discoidal cell; axillary lobe rather broadly rounded posteriorly, much broader than anal cell; basal comb moderately developed; squamae yellowish, white-fringed; halteres with pale yellowish white knobs. *Head* with the foveate depression on frons rather conspicuous; antennal joint 3 short, bulb- or onion-shaped, about as long or even slightly shorter than joint 1, its style slender, long, much longer than, sometimes even twice as long as joint; proboscis stoutish, short, confined to buccal cavity. *Legs* with the front tibiae non-spiculate; hind femora with only a few spines below in a single row; spicules in outer row on hind tibiae not much longer or denser than the rest.

From a ♂ and a ♀ in the South African and British Museums respectively.

Length of body: about 11–14 mm.

Length of wing: about $12\frac{1}{2}$ –16 mm.

Locality: Southern and Northern Rhodesia.

Exoprosopa-group

This group as defined by Bezzi is really the dumping-ground of all the species which do not appear to fit into any of the preceding groups. It is therefore not only very artificial, but exceedingly heterogeneous. The wing-patterns are also very variable and heterogeneous and in quite a number of species no clearly defined sections, based on wing-pattern, can even be indicated or suggested. In others the pattern resembles those shown by representatives of the *Acrodisca*- and *Defilippia*-groups. On the whole the venational characters are based on the discoidal cell which is usually short and obtuse or even truncate at end; vein between it and second posterior cell much shorter than that between it and third posterior cell; this apical vein usually straight or at least straighter and much less S-curved than in the *Defilippia*-group, more perpendicular to hind margin of wing. The discoidal cell may in some cases be greatly dilated apically. The nature of the front legs cannot be used to differentiate this group because in a number of species they show the same characters as those of the *Acrodisca* and *Defilippia*-groups.

The various sections to which species in this revision are referred are artificial, the species being merely grouped together for the sake of convenience and in most cases do not imply natural affinities.

Exoprosopa punctulata-section

Representatives of this section are not the same as those which Bezzi grouped under his *punctulata*-group. For the sake of convenience species which show the following characters may be included in this section: Front legs on the whole stoutish, often markedly short, the front femora stout and relatively short, only about or often distinctly much less than $1\frac{1}{2}$ times length of front coxae, often spinulate or with some shortish spines; front tibiae usually also stoutish, with some distinct spicules or conspicuously spinulate; front tarsi on the whole thick, with stoutish spines below and coarse hairs above, only about or only a little longer than half length of tibiae; claws of front tarsi relatively less reduced. The wing-pattern various, but more often with large or conspicuous spots on some of the cross veins and bifurcations in addition to an anterior infuscation.

Exoprosopa punctulata Macq.

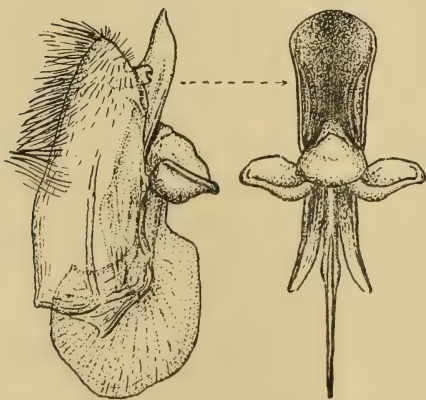
(Macquart, p. 48 and tab. 18, fig. 2, *Dipt. Exot.*, ii, 1840; Bezzi, p. 645 and pl. L, fig. 21, *Trans. Ent. Soc. Lond.*, 1911 (1912); Bezzi, pp. 159 and 170, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 310, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Syn. = *rasa* Loew, p. 239 and tab. ii, fig. 39, *Dipt. Faun. Südaf.*, i, 1860.)

As was maintained by Bezzi in 1911 and pointed out by me in 1955 (p. 401, *South African Animal Life*, ii), the species *rasa* of Loew is without doubt a synonym of *punctulata* and merely represents a slight varietal form in which the spots on cross veins are less extensively developed. This species which is fairly widely distributed in Southern and Eastern Africa is slightly variable, but easily recognized by the following characters:

Body rather elongate; abdomen subconical; mainly black; frons in front and face either entirely yellowish or yellowish to a variable extent, sometimes greater part of face or genal part and base of face black; scutellum, sides of abdomen in ♂ to a variable extent, sometimes very broadly, hind margins of tergites to a variable extent or sometimes very narrowly or not at all, sometimes the pleurae, broad hind margins of sternites or in some ♂♂ even entire venter and greater part of legs yellowish brownish; apices of apical parts of femora and at least hind tibiae and the tarsi darkened or covered with black scaling. *Vestiture* with the hairs on head in front entirely black, the scaling gleaming yellowish or greyish silvery, more distinctly silvery on sides of face and behind eyes; collar above, upper part of mesopleural tuft, propleural tuft, metapleural tuft yellowish to straw-coloured yellowish, mesopleuron sometimes with some intermixed dark or black hairs, but without any black ones on humeral tubercle and notopleural part; tuft at base of abdomen on sides and also partly on sides of tergite 3 white; hairs on venter mainly whitish or pale; prealar bristles, other thoracic and scutellar bristles, fine hairs on disc of thorax, some hairs on sides apically of tergite 2, those on extreme sides below 2 and 3 and on sides of rest of tergites (where the hairs are not very dense) and the hairs on abdomen above black; scaling on thorax above in streaks of greyish yellowish to whitish ones, separated by dark ones the streak on sides conspicuously white; scaling on scutellum yellowish, more whitish across base and sides; scaling on

abdomen above composed of yellowish or ochreous yellowish, white and black ones, the latter mostly concentrated narrowly across hind margins of tergites, the white ones occur across hind margin of tergite 1 laterally, extreme sides of 2, on sides and as a narrow band across base of 3, sides and across base of 5 and across entire 6 and 7, the ochreous ones on rest of tergal surfaces above, more densely on sides; scaling on body below mostly whitish, but with spot-like patches of dark ones on each side of venter sometimes present; scales on legs mainly yellowish, darker on femora above. *Wings* mainly hyaline,



TEXT-FIG. 254. Side view of hypopygium and ventral view of detached aedeagal apparatus of ♂ *Exoprosopa punctulata* Macq.

but with the base and anterior costal part, including entire first basal cell, greater part of marginal cell to slightly beyond base of submarginal cross vein and base of enclosed submarginal cell yellowish brownish to brown, with spots on cross veins and bifurcations present and conspicuous to a variable extent, those on middle cross vein, bases of apical two cells and at base of fourth posterior cell always distinct; middle cross vein round about the middle of discoidal cell; the latter subacute to subtruncate apically, its apical vein straight, substraight or only feebly S-curved. *Head* with the face rather short, broad and bluntish, its sides slightly convexly rounded; antennal joint 3 conical, its style at least half as long as joint; proboscis usually projecting a little beyond buccal cavity. *Legs* with the front ones stoutish; front femora stoutish, spinulate above; front tibiae distinctly spiculate; front tarsi with markedly dense, stiffish hairs above, denser in ♀; basal tooth of claws fine, straight, spine-like. *Hypopygium* of ♂ (text-fig. 254) with rather long hairs on dorsal apical aspect of basal parts; aedeagal process broad, shoe-horn-shaped, hollowed out ventrally; lateral struts and basal strut well developed, broad, the latter sub-racket-shaped.

In the British, Rhodesian, Transvaal and South African Museums, in the Commonwealth Institute and in the Zoological Institute of the University of Lund.

Length of body: about 7–16 mm.

Length of wing: about $7\frac{1}{2}$ – $15\frac{1}{2}$ mm.

Locality: South-western and Eastern Cape, Karoo, Namaqualand, Natal, Zululand, Orange Free State, Transvaal, South-West Africa and Portuguese East Africa.

Exoprosopa inaequalipes Lw.

(Loew, p. 659, *Bericht d. Königl. Preuss. Akad. Wissensch. Berlin*, 1852; Loew, p. 11 and pl. i, fig. 8, *Peters Reise nach Mossambique*, 1862; Paramonow, p. 81, *Acad. d. Sc. d'Ukraine*, No. 9 (*Trav. Mus. Zool. Kiev*, No. 11), 1931; Hesse, p. 28, *Mem. do Museu Dr. Alvaro de Castro*, No. 1, 1950.)

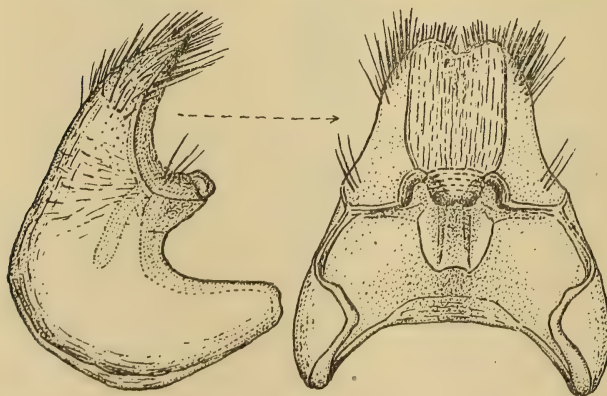
(Syn. = *hirtipes* Loew, p. 233 and tab. ii, fig. 32, *Dipt. Faun. Südafr.*, i, 1860.)

(Syn. = *poeciloptera* Bezzi, p. 333 and fig. 34, *The Bombyliidae of the Ethiopian Region*, 1924.)

As I have pointed out in my paper on the Bombyliidae of the Museu Dr. Alvaro de Castro (loc. cit.) there is no doubt whatever that the species *hirtipes* of Loew and *poeciloptera* of Bezzi are synonymous with *inaequalipes*. Bezzi wrongly identified a specimen in the South African Museum (p. 160, *Ann. S. Afr. Mus.*, xviii, 1921), which is referable to *major* Ric. (see under *major*), as *inaequalipes*. Other specimens in the South African Museum identified by him as *hirtipes* Lw. belong to still another species which I am describing as *tripartita* in this revision. To this latter new species all or most of the specimens referred

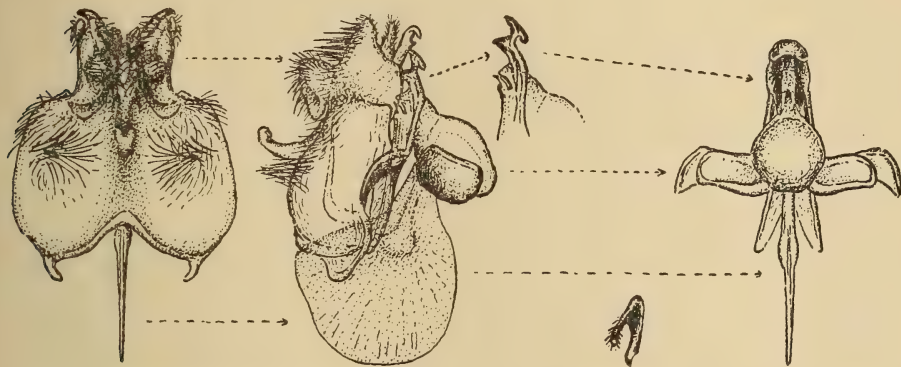
to *hirtipes* by Bezzi in his revision of the Ethiopian Bombyliidae probably also belong. This species is easily recognized by the following combination of characters:

Body dark blackish brown; greater part of frons and face, postalar calli, scutellum, sides of abdomen (very broadly in ♂), the broad hind margins of tergites in ♀, pleurae to a variable extent, very broad hind margins of sternites or even greater part of venter and the legs reddish brownish. *Vestiture* with all the hairs on head in front black, the scaling yellowish; collar above (in front), many intermixed hairs in upper part of mesopleural tuft, upper part of propleural tuft and metapleural tuft yellowish; hind part of collar above, most of humeral tuft, numerous intermixed bristles in upper part of mesopleural tuft, hairs on mesopleuron, prosternal ones, thoracic and scutellar bristles, hairs on thorax above, coxal bristles, hairs on sides of abdomen from apex of tergite 2, those on abdomen above and posteriorly on venter black; tuft on sides of abdomen at base whitish and hairs on venter basally whitish to sericeous; scaling on thorax above in streaks of bronzy or greyish yellowish ones, separated by dark, more brownish ones; streak on sides fulvous brownish to yellowish; hair-like scaling on pleurae brownish or reddish fulvous, especially below base of wings, on pteropleuron and on coxae; scaling on abdomen above composed of white, yellowish and black ones, the white ones conspicuous as a dense patch on sides of tergite 2, on sides and across basal half or part of 3, almost entirely across or only narrowly interrupted discally across basal half of 5 and entirely across 6 and 7; yellowish ones more basally and discally on tergite 2 and sides of 4; scaling on venter pale basally, darker in apical half; scaling on legs dark, but gleaming more greyish yellowish to bronzy or brownish in certain lights. *Wings* hyaline, with a very characteristic pattern of dark blackish brown as shown in pl. ii, fig. 7, which cannot be confused with that of any other species. *Antennae* with joint 3 conical, its style very long, only a little shorter or even as long as joint itself or at least longer than half its length. *Legs* with the front ones stoutish, relatively short; front femora short, the tibiae stoutish and with distinct and well-developed spicules and, in ♀ especially, with stiffish erect hairs apically; front tarsi with rather dense, stiffish hairs, especially above. *Last sternite* of ♂ (text-fig. 255) relatively large, almost entirely enclosing hypopygium;



TEXT-FIG. 255. Side and ventral views of last sternite of ♂ *Exoprosopa inaequalipes* Lw.

concavity with a ridge-like or flange-like projecting process on each side in middle and also with a posteriorly directed, scoop-like process. *Hypopygium* of ♂ (text-fig. 256) entirely different from that of most species of *Exoprosopa*, more resembling that of *mira* and *tripartita*, with a raised and projecting scroll-like process dorsally on basal parts, also with a central, curved prong or hook-like process; beaked apical joints with the outer margin or sides produced into a long prong or process (see side view in second figure and dorsal view on right



TEXT-FIG. 256. On left: Dorsal and lateral views of hypopygium of ♂ *Exoprosopa inaequalipes* Lw. Middle above: Side view of apical part of aedeagal process of ♂ of same species. On right: Ventral view of detached aedeagal apparatus and below dorsal view of right beaked apical joint of ♂ of same species.

below); aedeagal process shaped as shown in side view (third figure and ventral view (right)); lateral struts very broad; basal strut large, broad, sub-racket-shaped.

In the Transvaal, Durban, Natal and South African Museums and Museu Dr. Alvaro de Castro.

Length of body: about 12–15 mm.

Length of wing: about 12–15 mm.

Locality: Natal, Portuguese East Africa and according to Bezzi also in Nyasaland.

Exoprosopa tabanoides Bezz.

(Bezzi, p. 337, *The Bombyliidae of the Ethiopian Region*, 1924.)

This large, dark and characteristic species which agrees well with Bezzi's description of the ♀ of *tabanoides*, together with the as yet undescribed ♂, is characterized as follows:

Body black; greater part of frons, excepting black vertex, greater part of or entire face, antennae, greater part of sides of head below eyes, humeral tubercle, sides of thorax above, entire scutellum, sides of tergites 2–4 broadly, more

broadly in ♂ or even entire sides of abdomen in ♂, narrowish hind margins of tergites, entire or greater part of pleurae or at least sutural parts to a variable extent and usually more so in ♂, hind margins of sternites and the legs dark reddish or reddish brownish. *Vestiture* with all the hairs and bristles above and below (excepting only the yellowish anterior part of collar or the collar above and whitish plumula) entirely black; scaling on head in front gleaming greyish yellowish to brownish in certain lights, dark in others, that on sides of face, however, more shining or silvery; that behind eyes narrowly whitish; scaling on rest of body above and below mainly dark or black, but some in streaks on thorax above gleaming more greyish brownish or yellowish in certain lights; a patch on sides of tergites 2-4, a band across base of 2 and patches on sides of 6 and 7 or bands of sparse scaling across these two tergites whitish; scaling on legs black. *Wings* elongate, entirely infuscated very dark blackish brown or dark greyish brown throughout, but with the middle parts of the cells sometimes appearing less dark, without any distinct darker spots, though the middle cross vein area and the base of fourth posterior cell sometimes show up a little darker against dark background; praediscoidal spot whitish, conspicuous; veins yellowish brown to reddish brown; discoidal cell slightly dilated leek-like apically, truncate or subtruncate apically, its apical vein straight or nearly so; middle cross vein usually a little or just before middle of discoidal cell; second posterior cell with its sides substraight. *Head* with antennal joint 3 elongate-conical, its style yellowish, stoutish, a little less than a third length of joint; proboscis stoutish, not or scarcely projecting. *Legs* with a row of distinct spicules on outer lower aspect of front tibiae; front tarsi without any stoutish or stiffish bristly hairs. *Hypopygium* of ♂ (text-fig. 257) with the aedeagal process broad, shaped as shown in figures; lateral struts relatively small.

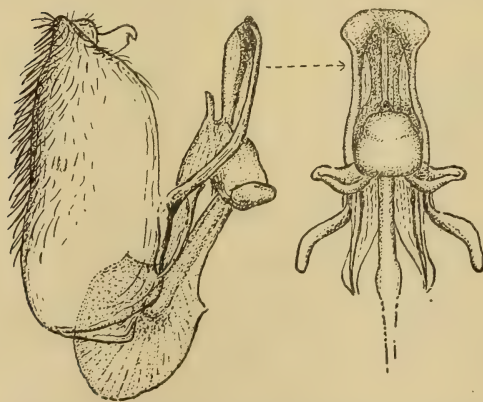
In the Rhodesian and South African Museums.

Length of body: about $13\frac{1}{2}$ -17 mm.

Length of wing: about 18 - $21\frac{1}{2}$ mm.

Locality: Southern Rhodesia and Nyasaland and according to Bezzi also in Natal, North-eastern Rhodesia and Katanga in the Congo.

The species is apparently slightly variable in certain respects. Two specimens, from Nyasaland and Gota Gota Urungwe, in the collections before me differ



TEXT-FIG. 257. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa tabanoides* Bezz.

from the Rhodesian specimens in having the part of head behind eyes less extensively reddish or even mainly dark; scaling on head in front darker and with less dense or a narrower band of pale hairs in anterior part of collar. Superficially this species resembles *E. (Acrodisca) offuscata* from the Cape, from which it may at once be distinguished by the entire absence of a projecting stump from lower vein of discoidal cell, a differently shaped and truncate discoidal cell, entirely black hairs on body, etc.

Exoprosopa spectrum Speis.

(Speiser, p. 79, *Kilimandjaro-Meru Exp.*, ii, 10, 1905-1906; Bezzi, p. 346 and fig. 37, *The Bombyliidae of the Ethiopian Region*, 1924.)

As there are several other species of *Exoprosopa* with slightly tinted wings and a darker antero-costal infuscation, it is difficult to identify this species of Speiser from his short description based only on ♀♀. With the help of Bezzi's figure of a wing of a ♀-specimen (loc. cit.) it is however possible to identify the species provisionally according to Bezzi's interpretation. A ♂ and 2 ♀♀ in the collections before me are referred to this species and they are characterized as follows:

Body and legs predominantly black, though the latter, especially tibiae, more reddish brownish when denuded; postalar calli and hind part or hinder half of scutellum reddish or reddish brownish. *Vestiture* with all the hairs on head, across hind part of collar above, on thorax above, most of those on humeral tubercle, the notopleural, thoracic and scutellar bristles, most of the hair on pleurae, numerous bristles in hinder or upper part of metapleural tuft, dense hairs on sides of abdomen from tergite 2 and hairs posteriorly on venter black; collar above, upper part of mesopleural tuft, numerous hairs in propleural tuft and lower or anterior part of metapleural tuft yellowish to deep yellowish; plumula and basal tuft on sides of abdomen more whitish and hairs on basal part of venter also whitish, but rest of hairs on venter gleaming more golden; scaling on head in front gleaming slightly brassy to greyish yellowish; that on thorax above and base of scutellum mainly dark, with some pale or brassy ones in faint streaks and across base and yellowish ones posteriorly on scutellum; streak on sides of thorax pale yellowish or straw-coloured; hair-like scaling on pleurae dark, but scaling on posterior part of sternopleuron yellowish; scaling on abdomen above mainly black, but with a medially interrupted, broadish, transverse band of dense white scales across basal half of tergite 3, a small patch on sides of 4 and either on sides or across 6 and 7; scaling on venter and legs mainly dark or black, though some pale ones at base of venter. *Wings* rather long, with a pattern as portrayed by Bezzi (fig. 37, loc. cit.), infuscated very dark blackish brown to almost black anteriorly up to or nearly up to level of base of submarginal cross vein and across from about basal third of anal cell, across extreme base of discoidal cell to middle cross vein, thence across base of first posterior cell and base or basal third of enclosed submarginal cell, with the rest of wings distinctly tinged smoky brownish in ♀, but distinctly clearer, more

greyish hyaline in ♂, without any spots or infusions on cross veins and even those at base of fourth posterior cell and on middle cross vein scarcely or not evident; discoidal cell slightly dilated apically, but rather acute, its apical vein almost straight or only feebly S-curved; middle cross vein a little before middle of discoidal cell. *Head* with antennal joint 3 elongate-conical, its style about half to a little less than half length of joint; proboscis short, stoutish, spinuliferous. *Legs* with the hairs on hinder and lower parts of front and middle femora well developed; spines on middle and hind femora well developed; hind tibiae with distinct, dense and longish scales, sub-feathery in appearance; front legs slender, its tibiae with rows of distinct spicules; front tarsi more hairy in ♀.

In the South African, Transvaal and Rhodesian Museums.

Length of body: about $10\frac{1}{2}$ –14 mm.

Length of wing: about $12\frac{1}{2}$ –16 mm.

Locality: Southern Rhodesia: Vumbu Mountains.

The species *Anthrax fumipennis* (a headless specimen) which Wiedemann described in 1828 (p. 267, *Aussereurop. Zweifl. Ins.*, i) from an unknown locality and which Bezzi in a footnote thinks may represent this species, is however according to the description an entirely different species in which the sides of the abdomen and base of venter are reddish and the white scaling on abdomen is disposed in two transverse bands and a patch on each side.

Exoprosopa vumbuensis n. sp.

A few ♂♂ and ♀♀ in the collections before me, and which were caught in the same region and at about the same time as *spectrum*, so closely resemble the latter that they may almost be considered as representing only a variety of it. From *spectrum*, as described here and as interpreted by Bezzi, they however differ in the following respects:

Vestiture with much fewer or without any yellowish hairs in propleural tuft, with distinctly more numerous yellowish hairs in metapleural tuft, especially anteriorly, or at least with much fewer black ones above and posteriorly in this tuft; hair on at least posterior half of venter black, no gleaming golden ones being evident; pale scaling on head in front less conspicuous, gleaming sometimes slightly silvery greyish, but quite dark or blackish on face in certain lights; hair-like scaling on pleurae dark, without distinct pale ones on sternopleuron; white scaling on abdomen present on sides of all the tergites (2–7), not absent on sides of 2 and 5 as in *spectrum*. *Wings*, though similarly infuscated, with the anterior costal infuscation distinctly more extensive, extending across from slightly less than basal half of anal cell, across slightly more than basal third of discoidal cell to middle cross vein, thence across base of first posterior cell and at least basal half of enclosed submarginal cell; rest of wings distinctly clearer, only slightly greyish hyaline in both sexes, not distinctly tinged smoky brownish as in ♀ of *spectrum*; discoidal cell also distinctly and slightly more dilated apically, less pointed, more subtruncate. *Legs* with more numerous and

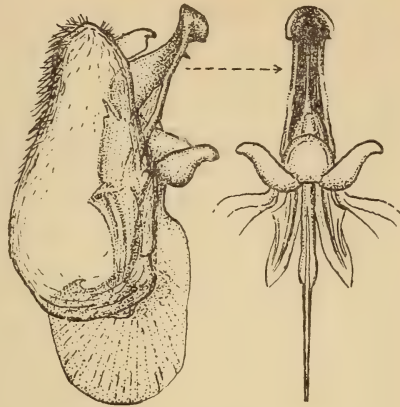
longer spicules on front tibiae; hind tibiae with distinctly shorter scales and less feathery in appearance. *Hypopygium* of ♂ (text-fig. 258) with the apical part of aedeagal process cowl-like and hollowed out ventrally, shaped as shown in figures.

From 2 ♂♂ and 4 ♀♀ (holotype in the South African Museum, allotype in the National Museum of Rhodesia and a paratype in the Agricultural Department of Southern Rhodesia).

Length of body: about $12\frac{1}{2}$ –15 mm.

Length of wing: about $14\frac{1}{2}$ –18 mm.

Locality: Southern Rhodesia: Vumbu Mountains (Drysdales, 19 Jan. 1935 and 4 Feb. 1935) (holotype); Vumbu Mountains (Rhodesian Museum, March 1928) (allotype).



TEXT-FIG. 258. Side view of hypopygium and ventral view of detached aedeagal apparatus of ♂ *Exoprosopa vumbuensis* n. sp.

Exoprosopa loxospila-section

Representatives of this section have the wings narrow basally, appearing stalked, with the alula and axillary lobe narrower than in most other species and with the basal part of lower vein of discoidal cell not sharply or angularly bent towards fourth posterior cell, causing the third posterior cell to appear more quadrangular or even triangular. The second posterior cell is also relatively broad apically, only a little narrower or sometimes as broad as third posterior cell.

Exoprosopa loxospila n. sp.

Body mainly black; genal part of face below each antenna, lower sides of face and sometimes narrow buccal rim pallid or yellowish; hinder part or narrow hind border of scutellum obscurely reddish brown, but scutellum sometimes entirely dark; abdomen entirely black above and below or sometimes hind margins of venter narrowly and obscurely reddish brownish; legs brownish to dark reddish brown, the tibiae often paler, more yellowish. *Vestiture* with all the hairs on head in front, fine hairs on disc of thorax, thoracic and scutellar bristles, all or most of the hair on pleurae, metapleural tuft, often entire or at least lower part of tuft at base of abdomen, the short and sparse hairs on sides of abdomen and hairs on venter black; collar above yellowish and sometimes with some or even numerous propleural and prosternal hairs also yellowish or gleaming yellowish brownish; plumula white and the short, stiff hairs at extreme base of abdomen above on each side also sometimes straw-coloured; scaling on head in front dark, gleaming greyish or dull bronzy in certain lights;

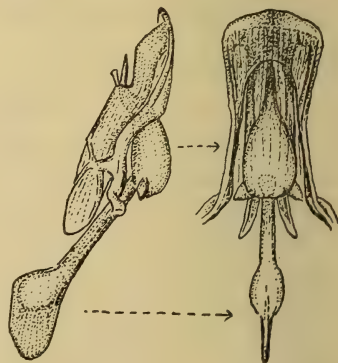
that behind eyes gleaming silvery; scaling on thorax and scutellum above mostly dark, gleaming graphite-like greyish; streak on sides of thorax above conspicuously whitish; scaling on body below and legs mainly dark or black, some on venter, especially across hind margins of sternites, gleaming more dull yellowish or brownish in certain lights; scaling on abdomen above mainly dark or black, but with a band of dense white scales across base of tergite 2, whiter and broader on sides, a white patch on sides basally of 3 and on sides of 6 and sparsely across 7. *Wings* (pl. ii, fig. 8) rather narrowish basally, sub-stalked, the axillary cell being narrowish and alula very narrow, infuscated dark blackish brown in basal part and anterior half, the infuscation extending from base of axillary lobe across basal half of anal cell, basal half of discoidal cell, across more than basal half of enclosed submarginal cell into marginal cell to opposite level of end of costal cell, leaving only apex of marginal cell hyaline (basal half or a little more of first posterior cell sometimes yellowish, but sometimes dark), with distinct, rounded, conspicuous spots at apices of apical veins, bases of two apical cells, at bases of third and fourth posterior cells and broadly along apical vein of discoidal cell (the latter spot more often confluent with anterior infuscation via basal half of first posterior cell to form a backwardly directed hook); discoidal cell narrow, not or scarcely or only slightly broadened apically, not produced apically, more often subtruncate, its apical vein straight or only very feebly S-curved; middle cross vein tending to be a little beyond middle of discoidal cell; third posterior cell long, narrowish, subtriangular, only a little broader than second posterior cell, often slightly narrower; anal cell narrowish, very broadly open; axillary lobe not much broader than anal cell; halteres dark brownish. *Head* with the frontal depression rather well marked; antennal joint 3 conical, its style stoutish, about one-third to a little more than half length of joint. *Legs* with the front ones stoutish, the front femora slightly spindle-shaped; front tibiae feebly spiculate; front tarsi in ♀ with dense stiffish hairs; spicules on middle and hind tibiae few, but longish; basal tooth of claws slender, spine-like. *Hypopygium* of ♂ with the aedeagal apparatus as shown in side and ventral views in text-fig. 259; basal parts with the hairs not dense; lateral struts very small, almost vestigial.

From 3 ♂♂ and 8 ♀♀ (holotype in the Transvaal Museum, allotype in the South African Museum).

Length of body: about 6–8½ mm.

Length of wing: about 7–8½ mm.

Locality: Transvaal: Pretoria (Munro, 7 Nov. 1913) (holotype); Pretoria (Munro, 11 Jan. 1913) (allotype); Pretoria (Munro, 16 Nov. 1913, 4 Dec.



TEXT-FIG. 259. Side and ventral views of detached aedeagal apparatus of hypopygium of ♂ *Exoprosopa loxospila* n. sp.

1915, 28 Dec. 1912, and 25 Dec. 1912); Pretoria (Zumpt, 7 Jan. 1951). East Cape: East London (Impey, Dec. 1918.)

The wing-pattern of this species superficially resembles that of *madagascariensis* Macq. (p. 410, tab., fig. 3, *Dipt. Exot., Suppl.* iv, 1849), but according to Macquart's figure of the wing the axillary lobe of the latter is very broad and more extensively infuscated and base of fourth posterior cell is also extensively infuscated. Moreover *madagascariensis* is stated to have a reddish frons and face and reddish hairs on thorax and abdomen. From *capensis*, which it also superficially resembles, it may at once be distinguished by the longer antennal style, more stalked wings, slightly different pattern of spots, more extensive dark scaling on body, entirely dark abdomen, darker legs, etc.

Exoprosopa ceuthodonta Hesse

(Hesse, p. 180, *Ann. Transv. Mus.*, xvii, 1936.)

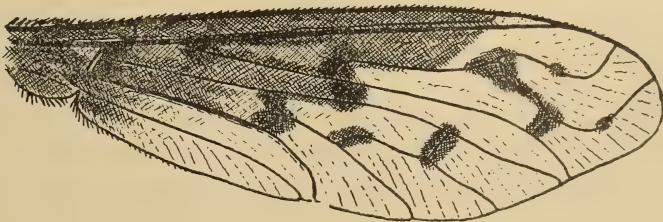
This smallish species which I described more fully in 1936 is chiefly characterized by its relatively feeble, stalked and spotted wings (text-fig. 260) of which the axillary lobe is very narrow; entirely yellowish hairs in collar and on pleurae; feebly developed, short and sparse dark hairs on sides of abdomen; entirely yellow scaling on body above and below; more creamy yellowish scales across base and middle of tergites 2 and 3 and bisinuate across middle of 4 and 5 and across 6 and 7; dark scutellum; yellowish apical halves of front and middle femora; slender front legs of which the tibiae are spiculate; and its projecting proboscis.

From *capensis* to which it has some superficial resemblance, it may, however, at once be distinguished by the more hyaline posterior part of wings, the short and straight apical vein of shortish and truncate discoidal cell, very much narrower axillary lobe and anal cell, relatively shorter face, longer style, more distinctly spiculated front tibiae, more slender front legs, etc.

Length of body: about $6\frac{1}{2}$ mm.

Length of wing: about 6 mm.

Locality: Bechuanaland.



TEXT-FIG. 260. Right wing of ♀ *Exoprosopa ceuthodonta* Hesse (after Hesse, fig. 4, p. 180, *Ann. Transv. Mus.*, xvii, 1936).

Exoprosopa trilocolina-section

The species described hereunder may be referred to a separate section on account of its characteristic wing-pattern which distinguishes it from all other South African species, and which superficially resembles that of the Palaearctic *lacerata* Engel. The transverse depression across base of face is also characteristic though it is shared by some other species of *Exoprosopa* which obviously do not belong to this section.

Exoprosopa trilocolina n. sp.

Body mainly black; genal part of face below antennae and broadish buccal margin yellowish; greater part of scutellum, hind margins of tergites, more broadly in ♂, broadish sides of abdomen and last two or three tergites in ♂, hind margins of sternites, more broadly in ♂, or even greater part of venter in ♂ reddish or yellowish red; legs dark reddish brown. *Vestiture* with all the hairs on head in front black; collar above, upper part of mesopleural tuft, upper part of propleural tuft and the metapleural tuft yellowish; fine hairs on thorax above, notopleural hairs, thoracic and scutellar bristles, intermixed hairs on mesopleuron, lower part of propleural tuft, hairs on sides of abdomen from apical part of tergite 2, coxal bristles and hairs on greater part of venter black; plumula and basal tuft of abdomen whitish and hairs at base of venter gleaming sericeous yellowish; scaling on anterior part of frons and on discal part of face in basal half very dense, flattened, conspicuously silvery white in ♂, slightly less dense in ♀, but shining silvery or greyish silvery; that behind eye-margins also silvery; that on disc of thorax in streaks of greyish silvery ones separated by more brownish ones; streak on side of thorax conspicuously snow-white; scaling on sides of scutellum whitish; that on abdomen above composed of white and greyish brownish or bronzy brownish gleaming ones, the whitish ones arranged across sides of hind margin of tergite 1, sides of 2, broadly across basal half of 3, on sides of 4 and 5 and across 6 and 7, that discally on 2 and discally across bases of 4 and 5, however, greyish brownish, gleaming more whitish in certain lights; scaling on body below and venter gleaming greyish yellowish in certain lights; that on legs mainly dark, gleaming brownish. *Wings* with a characteristic pattern of dark brownish and whitish hyaline (shown in pl. ii, fig. 9), the clear area in middle of second basal cell and two clear spots in discoidal cell being more or less constant; discoidal cell slightly broadened apically, its apical vein straight, substraight or only feebly sinuous; squamae yellowish, white-fringed; knobs of halteres yellowish. *Head* with a distinct transverse depression across base of face just below bases of antennae, the face thus more pyramidally conical; interocular space on vertex relatively broad; antennal joint 3 conical, relatively stoutish, its style stoutish, more so in ♀, about one-fourth to a little less than half length of joint (that of ♀ being the shorter). *Legs* with the front tibiae slender, non-spiculate; front tarsi slender, sparsely pilose, less so in ♂. *Hypopygium* of ♂ (text-fig. 261) reminiscent of that of

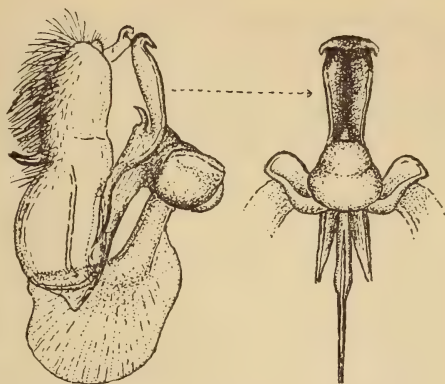
mira (cf. text-fig. 233), but differs in many respects; basal parts with a pair of projecting processes (not one) dorsally, composed of stout spine-like setae; aedeagal process also flattened, but with the apical edge recurved ventrally and also ending in a short spine-like process on each side; lateral struts and basal strut also broad.

From 3 ♂♂ and 5 ♀♀ (types and paratypes in the South African Museum).

Length of body: about 7–10 mm.

Length of wing: about $7\frac{1}{2}$ –10 mm.

Locality: South-West Africa (Kaokoveld): Kaross (Mus. Exp., Feb. 1925) (holotype); Warmbad (Mus. Exp., Feb. 1925) (allotype); Zesfontein (Mus. Exp., Feb. 1925).



TEXT-FIG. 261. Side view of hypopygium and ventral view of detached aedeagal apparatus of ♂ *Exoprosopa triloculina* n. sp.

Exoprosopa balioptera-section

Characterized by having the wings more or less infuscated in basal and anterior part and with dark and sometimes conspicuous spots or clouds on cross veins and bifurcations along margin of anterior infuscation; the discoidal cell distinctly bulb-shaped and truncate apically; the head too is slightly depressed just in front of the antennae and the face is relatively short, much shorter than postantennal distance to ocellar tubercle.

Exoprosopa balioptera Lw.

(Loew, p. 238 and tab. ii, fig. 40, *Dipt. Faun. Südaf.*, i, 1860; Bezzi, p. 160, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 335, *The Bombyliidae of the Ethiopian Region*, 1924; Paramonow, p. 79, *Acad. d. Sc. d'Ukraine*, No. 9 (*Trav. Mus. Zool.*, Kiev, No. 11, 1931).

Body mainly black; genal part of face below antennae, broadish buccal margin and usually first two antennal joints yellowish; hinder half of scutellum at least, narrowish hind margins of sternites and sometimes sutural parts of pleurae reddish or reddish brown; legs very dark reddish brown, black-scaled. *Vestiture* with all the hairs on head in front, fine ones on thorax above, thoracic and scutellar bristles, notopleural hairs, most or all the hairs on pleurae, including metapleural tuft, coxal bristles, dense hairs on sides of abdomen from apical part of tergite 1 and most of the hairs on venter black; collar above, upper part of mesopleural tuft or numerous hairs in it, some hairs in propleural

tuft sometimes and sometimes some in upper part of metapleural tuft yellowish; plumula and basal tuft of abdomen whitish and some hairs at base of venter sometimes gleaming yellowish; scaling on head in front relatively sparse, gleaming brassy yellowish; that behind eyes greyish silvery; that on thorax above mainly in streaks of brownish yellow and dark ones, the streak on sides conspicuous and whitish and scales on hinder part of scutellum greyish yellowish to whitish; scaling on abdomen above yellowish or ochreous yellowish, black and white, the latter arranged in two patches on sides of tergite 2, as a broadish band across middle of 3, on sides of 4 and 5 and on entire 6 and 7, the ochreous or yellowish ones present across hind margin of 1, across base of 2 and as paler yellowish ones narrowly across discal and hinder parts of 4 and 5, and with the black ones on rest of abdomen above; scaling on coxae and pleurae dark, that on venter dark in ♀♀ and some ♂♂, but greyish or greyish whitish to whitish in some ♂♂. *Wings* tinged smoky greyish, but with the base, costal cell, middle part of marginal cell in ♂ and in addition (to a lesser extent) also first and second basal cells, bases of enclosed submarginal and discoidal cells and base of anal cell in ♀♀, darker, more brownish or blackish brown and also with clouds or spots on cross veins and bifurcations and to a lesser extent also near ends of posterior veins between anal and axillary cells and second and third posterior cells, the spots at base of second vein, middle cross vein and at bases of third and fourth posterior cells in ♂ being slightly larger and rounder; prediscoidal spot large and distinct in ♀, not so visible in ♂; discoidal cell bulbularly broadened or leek-like apically, truncate or subtruncate, its apical vein slightly S-curved or bent inwards; third posterior cell long, sub-quadrangular, but narrowed basally; middle cross vein usually a little beyond middle of discoidal cell; squamae opaquely yellowish, yellowish-fringed; halteres brown. *Head* with the face somewhat pyramidally conical, slightly transversely depressed across its base; antennal joint 3 elongate conical, its style stoutish, a little more than a fourth to a little more than a third length of joint. *Legs* with the front ones slender; front tibiae non-spiculate and front tarsi long, finely hairy. *Hypopygium* of ♂ resembles that of *vumbuënsis* (cf. text-fig. 258) and also that of *stannusi* (cf. text-fig. 243). From the former it differs in having the apical angles of basal parts more sharply produced, the broadened scoop-like apical part of aedeagal process much broader, with a relatively narrower neck region and in having the basal strut more bat-shaped, without a hook on its dorsal edge. From that of *stannusi* it differs in having the broadened apical part of aedeagal process very much broader and with a much shallower indentation in dorsal edge of basal strut.

In the Transvaal, Natal and South African Museums.

Length of body: about 9–11 mm.

Length of wing: about $9\frac{1}{2}$ – $11\frac{1}{2}$ mm.

Locality: Natal and Transvaal.

Easily recognized by the smoky spotted wings. The species appears to be slightly variable in the extent and intensity of the basal and anterior infuscation

in the wings, especially in ♀♀ and also in the presence or absence of yellowish hairs in upper part of mesopleural and propleural tufts. One ♀ from Natal represents a distinct form which has the scutellum almost entirely dark, the infuscation in the wings distinctly darker, more uniform, and the spots on cross veins distinctly more reduced.

Exoprosopa obscurinotata n. sp.

(Syn. = *eluta* Bezzi, in part, nec Loew, p. 156, *Ann. S. Afr. Mus.*, xviii, 1921.)

A ♀-specimen from Stellenbosch, collected by Péringuey in 1888, was wrongly assigned to *eluta* by Bezzi. This specimen together with another ♀ and a ♂ specimen from the Eastern Province are obviously very near to *balioptera* of which they may even be considered a Southern Cape variety. They differ, however, in having all the hairs on pleurae, with the exception of some intermixed dark ones on mesopleuron, yellowish to golden yellowish and those on venter pale; slightly paler or even more yellowish, yellowish-scaled legs; more whitish scales across hind margin of tergite 1 and base of 2; yellowish scaling on pleurae and white ones on venter in both sexes; more greyish hyaline and less smoky wings in which the basal and anterior brownish or reddish brownish infuscation is of equal extent in both sexes, the spots on cross veins less conspicuous, those at bases of two apical cells wanting or only very faintly indicated, and the veins paler; a discoidal cell which is apically distinctly more dilated or broadened bulb-like; middle cross vein much nearer middle or even a little beyond middle of discoidal cell; a distinctly longer antennal style in ♂ which is about or nearly half length of third joint; a relatively shorter face which is less or scarcely depressed across its base.

Holotype in the Transvaal Museum and allotype in the South African Museum.

Length of body: about 9–9½ mm.

Length of wing: about 10½–11 mm.

Locality: South-eastern Cape: Humansdorp (Brauns, 20 Dec. 1922) (holotype); Stone Hill in Albany Dist. (Whitworth, 6 Dec. 1923) (allotype). South-western Cape: Stellenbosch (Péringuey, 1888).

Exoprosopa argentifrons-section

Characterized by the sharply defined or dimidiate, very dark basal and anterior infuscation in wings of which the hind margin is irregular, with deep indentations and distinct extensions or projections opposite base of fourth posterior cell and across apical part of discoidal cell, the anterior infuscation usually ending truncately in marginal cell. The abdomen, especially in ♂♂, usually has a pattern of black, yellowish and white or whitish scales which is not arranged in regular bands and also has longish scales in tufts on sides among the

hairs in both sexes. The head in front and the posterior part or sides of abdomen in ♂♂ sometimes with specially modified very brilliant, silvery scales.

Exoprosopa argentifrons Macq.

(Macquart, p. 68 and tab. 3, fig. 2, *Dipt. Exot. Suppl.*, v, 1855; Bezzi, p. 643 and pl. L, fig. 18, *Trans. Ent. Soc. Lond.*, 1911 (1912); Bezzi, p. 154, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 293 (but not fig. 28), *The Bombyliidae of the Ethiopian Region*, 1924.)

This Cape species with its characteristic, irregularly margined, anterior infuscation in the wings and patch of dense silvery scales on head in front in ♂ appears to be variable in size, in the extent of the yellowish face, the extent to which the projection of the wing-infuscation into the discoidal cell in ♂♂ is developed and the extent of the black hairs on pleurae. It is characterized as follows:

Body mostly black; anterior part or half of frons, base and upper part on sides of face yellowish red or reddish to a variable extent, the face sometimes extensively or almost entirely dark; greater part or more often hinder half of scutellum reddish, but sometimes entirely dark; sides of tergites 2-3 (or 4) very broadly in ♂♂, more narrowly in ♀♀, yellowish red; entire sides of abdomen in some ♂♂, though not at all in some ♀♀, also reddish; hind margins of tergites to a variable extent, especially in ♂♂, last two tergites in ♂♂, basal half or even greater part of venter or broad hind margins of sternites in ♂♂ and sometimes only narrowish hind margins in ♀♀, middle parts of pleurae to a variable extent in both sexes and the legs also yellowish reddish, the legs being usually more yellowish. *Vestiture* with the hairs on head in front entirely black, more developed on frons in ♀; scales on more than front half of frons and base of face in ♂ dense, flattened, brilliantly silvery white, much sparser, narrower, less brilliantly silvery, often more golden or even brassy in ♀, though small spots of brilliant silvery ones are also present on each side above antennae and halfway to vertex; scaling behind eye-margins also silvery; fine hairs on thorax above, notopleural hairs, thoracic and scutellar bristles, dense hairs or more numerous ones in upper part of mesopleural tuft in ♂, none or much fewer in ♀, numerous intermixed ones on mesopleuron in ♂, fewer in ♀, some hairs in anterior and lower parts of propleural tuft, more numerous in ♂, some or numerous hairs in posterior part of metapleural tuft in ♂, tufts of hairs on sides apically of tergites 1-3 and on sides of rest, the coxal bristles and hairs on venter posteriorly black; collar above, pale hairs in upper part of mesopleural tuft, especially in ♀, or even entire tuft in ♀, pale ones in propleural tuft and metapleural tuft (entirely so in ♀) yellowish or straw-coloured yellowish; metapleural tuft often more whitish or white, especially in ♀; pale hairs on sides of abdomen and on base or basal half of venter whitish; scaling on thorax above mainly gleaming greyish silvery to yellowish in ♀, more yellowish or even more reddish golden in ♂; tuft of dense, fine, hair-like scales in front and below wing-bases fulvous

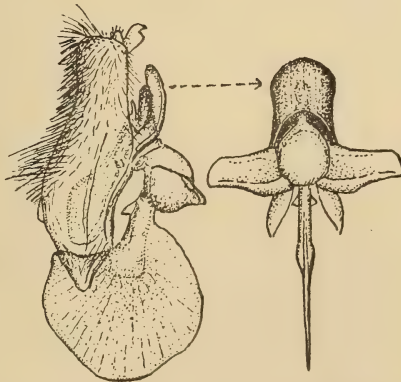
yellowish, more fulvous brownish in ♂; scaling on abdomen above whitish, ochreous and black, the latter predominating in ♂, and in ♀ with more pale or whitish ones, the whitish ones arranged across hind margin of tergite 1 and base of 2 discally, across base on sides of 3 in ♂, but more extensively across in ♀, across base of 4 in ♂ and almost entirely across 4 in ♀, across rest of tergites to a variable extent in ♀, but only as dense, flattened, brilliantly silvery ones on last two tergites in ♂; ochreous scaling on abdomen above more evident in some ♂♂, often replaced by more whitish ones as in ♀♀, arranged more or less across hind margins in both sexes and discally on tergite 2, irregularly on sides of 3-5 among dark ones in ♂, all the latter ones in most ♀♀ being replaced by more whitish ones; scaling on venter mainly white or whitish in ♀, white in basal half in ♂, but with patches of dark ones across sternites 4 or 5 to 7 which are sometimes also indicated in some ♀♀; scaling on legs mainly whitish and yellowish. *Wings* (pl. ii, fig. 10) hyaline, with a characteristic dark, blackish brown infuscation in basal and anterior parts, extending from a little more than basal halves of anal and axillary cells across to base of submarginal cross vein opposite which it ends truncately in marginal cell, its hinder margin irregular, due to extensions or projections of the infuscation and clear indentations, the first projection extending into bases of fourth and third posterior cells, followed by a broadish clear indentation in discoidal cell to fourth vein, the second projection hook-like, extending into apical part of discoidal cell to a variable extent, being narrower and shorter or only indicated in ♂♂; middle cross vein much before middle of discoidal cell. *Head* with antennal joint 3 conical, sometimes almost bulb-like in some forms, its style varying in length from about $\frac{1}{2}$ to more than $\frac{1}{2}$ length of joint. *Legs* with the front ones slender, their tibiae slender, non-spiculate; front tarsi slender, long, finely pilose; spicules in outer upper row on hind tibiae not markedly dense or with long scales. *Hypopygium* of ♂ (text-fig. 262) with the basal parts rather densely hairy above, their apical margins truncated; beaked apical joints with the outer margin produced into a rather prominent, longish, upwardly directed process; aedeagal process shortish, tongue-shaped, curved; lateral struts relatively broad; basal strut broad, with a short, flattened process on each side dorsally near its base.

In the British, Transvaal and South African Museums.

Length of body: about $4\frac{1}{2}$ -11 mm.

Length of wing: about $4\frac{1}{2}$ -11 mm.

Locality: Western Cape Province, Koup Karoo, Karoo, Namaqualand and Great Namaqualand in South-West Africa.



TEXT-FIG. 262. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa argentifrons* Macq.

Exoprosopa argentifrons var. *scalaris* Bezz.

(Bezzi, p. 294 and fig. 28, *The Bombyliidae of the Ethiopian Region*, 1924;
Hesse, p. 179, *Ann. Transv. Mus.*, xvii, 1936.)

This variety resembles *argentifrons* very closely and can only be considered as a northern or subtropical form of the latter. It differs from *argentifrons* s. str. only in the following respects:

Infuscation in wings in the enclosed submarginal cell less extensive, distinctly shorter in this cell, extending to a point just a little short of apex of discoidal cell in ♀ and much shorter in ♂, leaving a distinctly larger apical area in enclosed submarginal cell hyaline than in *argentifrons*; the infuscation is also without a backward extension or prolongation across apical part of discoidal cell in ♂ of *scalaris* and with a distinctly narrower, slightly shorter, more pointed extension across apical part of same cell in ♀ (much like that of ♂-*argentifrons*); base of fourth posterior cell in both sexes with distinctly less extensive infuscation than in *argentifrons*. The pale scaling on venter in *scalaris*, even in ♂, tends to be more uniformly whitish, without any or with less dark ones posteriorly, but ♂ of *scalaris* also has a patch of dense silvery scales on head in front and across last two tergites. *Hypopygium* of ♂ is almost identical with that of *argentifrons* except that the dorsal edge of basal strut is slightly more deeply indented.

In the British, Transvaal and South African Museums.

Length of body: about $4\frac{1}{2}$ –10 mm.

Length of wing: about $4\frac{1}{2}$ – $9\frac{1}{2}$ mm.

Locality: North Transvaal, Southern Rhodesia, Portuguese East Africa, North Bechuanaland and South-West Africa.

As regards the infuscation in the wings of *argentifrons* and *scalaris* it is quite evident that the illustration of a wing (fig. 28) given by Bezzi as that of *argentifrons* on p. 293 (loc. cit.) is that of a ♂ of the var. *scalaris*.

Exoprosopa scaligera Bezz.

(Bezzi, p. 643 and pl. L, fig. 19, *Trans. Ent. Soc. Lond.*, 1911 (1912);
Bezzi, pp. 278 and 294, *The Bombyliidae of the Ethiopian Region*, 1924.)

Four ♂-specimens in the collections before me are to be referred to this species which Bezzi described from Nyasaland in 1912. The ♀ of this species remains as yet undescribed.

The ♂♂ more closely resemble ♂♂ of *argentifrons* s. str. from which they may at once be distinguished by the distinctly much longer antennal style which is at least subequal in length or even a little longer than third joint which itself is more cone-like or bulb-like; the entire absence of a conspicuous patch of dense brilliant and silvery scales on head in front and on last two tergites, the scales on head in front being relatively sparse and reddish golden or golden; the head across frons in front itself relatively much narrower; frons with more

numerous and denser black hairs, with more or even predominantly dark hairs on lower parts of pleurae and dark scaling on hinder part of venter more extensive; a more constantly darker scutellum of which only the hinder part or margin is reddish and much narrower or obscure reddish hind margins to tergites; and a blackish brown infuscation in wings which though very similar differs in having the hook-like projection across apical part of discoidal cell constantly longer and at least reaching lower apical angle of discoidal cell, and the projection at base of fourth posterior cell also longer, occupying distinctly more of base of this latter cell, the clear indentation before it in anal cell thus appearing deeper. Last sternite is distinctly very much shorter than in *argentifrons*. *Hypopygium* of ♂ very similar to that of *argentifrons*, but apparently differing only in having the aedeagal process slightly narrower and more narrowed and pointed apically; basal strut distinctly narrower.

In the South African Museum and the Museo Dr. Alvaro de Castro, Lourenço Marques.

Length of body: about $7-8\frac{1}{2}$ mm.

Length of wing: about $7-8\frac{1}{2}$ mm.

Locality: Portuguese East Africa.

Exoprosopa trigradata-section

Represented by only one known South African species and characterized by having the hind margin of the dimidiate infuscation in the wings irregular and trigradate or trisinuate, the third posterior cell considerably shorter than fourth and the first posterior cell much narrowed or subacute apically. The face too is distinctly divided from frons by a distinct transverse depression.

Exoprosopa trigradata n. sp.

Compared with Bezzi's description this species is very near, if not a mere variety of, *clausina* from Angola (p. 301, *The Bombyliidae of the Ethiopian Region*, 1924). It agrees and differs from the latter in the following respects:

Body, including scutellum and legs, predominantly black, the apical discal part and buccal margin of face, however, yellowish and tibiae tend to be more dark reddish brown. *Vestiture* with all the hairs on head in front, fine ones on thorax above, some notopleural hairs, thoracic and scutellar bristles, most of the hairs on mesopleuron and sternopleuron, in propleural tuft, hairs on sides of abdomen from apex of tergite 2, and, unlike *clausina*, all the hairs on venter black; collar above, all the hairs on humeral tubercle, in upper part of mesopleural tuft, some on pteropleuron and metapleural tuft yellowish; plumula and hairs at base of abdomen more straw-coloured or whitish; scaling on head in front rather sparse, dark, but gleaming bronzy or graphite-like; scaling on thorax above mostly dark, gleaming greyish or graphite-like; scaling on abdomen above (where not denuded in specimen) mostly black, a transverse

band across base of tergite 2 and on sides of 3 whitish, that on 4 and 5 not yellowish as in *clausina*, but mainly dark and that on 6 and 7 greyish whitish; scaling on venter and legs mainly dark or black, but with those across hind margins of sternites on sides gleaming more greyish whitish. *Wings* hyaline, but with a dark coffee-brownish or chocolate-brownish infuscation in anterior part, extending from base to near apex of costal cell, its hind margin with three steps or notches, the infuscation beginning at extreme base of axillary lobe across basal third of anal cell, then with the first step at apex of second basal cell and base of discoidal cell, after which it runs along just below fourth vein to a little beyond middle cross vein where second step is formed and then across to base of submarginal cross vein from which and across marginal cell to apex of costal cell the third oblique step is formed; a spot-like extension at base of submarginal cross vein and a small faint spot also on base of third posterior cell; first posterior cell acute apically, but not stalked as in *clausina*; third posterior cell markedly shorter than fourth, its base considerably removed from base of the fourth posterior cell and much nearer middle of latter; truncate base of third posterior cell with a short stump projecting into discoidal cell; second posterior cell rather broad apically, as broad as third; discoidal cell subtruncate apically, narrower apically than opposite base of third posterior cell, its apical vein almost straight, only very feebly S-curved; middle cross vein at about or near middle of discoidal cell; base of second vein a little, but distinctly, before middle cross vein; squamae yellowish, not brownish as in *clausina*, its fringe yellowish white; halteres with yellowish and not dark knobs. *Head* in front somewhat shiny, distinctly transversely impressed across base of face, the latter more pyramidally conical; frontal depression foveate; antennal joint 3 elongate, rod-like, its style stoutish, short, not longer than antennal joint 2. *Legs* with the front ones slender, their tibiae non-spiculate; spicules on middle and hind ones rather long, those in outer upper row on hind tibiae rather separated, not denser than in other rows.

From 1 ♀ in the South African Museum.

Length of body: about 9 mm.

Length of wing: about 9 mm.

Locality: South-West Africa: Kaoko Otavi in the Kaokoveld (Mus. Exp., March 1926).

The dark anterior infuscation in the wings also superficially resembles that of *Anthrax trisinuatus* described elsewhere in this revision.

Exoprosopa dimidiata-section

Representatives of this section usually have the wings sharply and darkly dimidiately infuscated, the basal and anterior infuscation very dark blackish brown to black, occupying and extending from at least basal half of axillary lobe or basal half of anal cell obliquely straight across to end of costal cell and more or less sharply delimited from the hyaline apical and hinder parts;

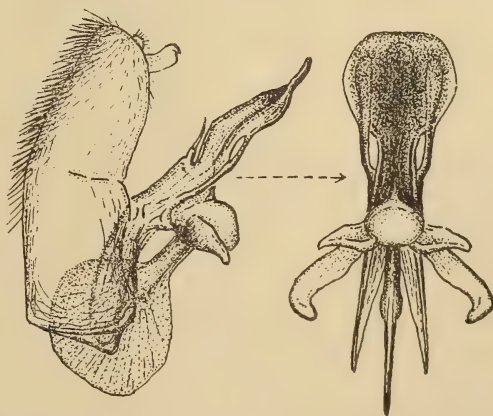
darker spots, infusions or clouds on cross veins within the infuscated part or in hyaline part not evident. The head in front more often with brilliantly gleaming or silvery scales, especially on sides of face and head in front and posterior part or sides of abdomen in ♂♂ often with specially modified very brilliant silvery scales as in the *argentifrons*-section.

Exoprosopa dimidiata Macq.

(Macquart, p. 107 and tab. 9, fig. 11, *Dipt. Exot. Suppl.*, i, 1846; Loew, p. 225 and tab. ii, fig. 24, *Dipt. Faun. Südaf.*, i, 1860; Bezzi, p. 641, *Trans. Ent. Soc. Lond.*, 1911 (1912); Bezzi, p. 157, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 303 and fig. 31, *The Bombyliidae of the Ethiopian Region*, 1924; Paramonow, p. 81, *Acad. d. Sc. d'Ukraine*, No. 9 (*Trav. Mus. Zool. Kiev*, No. 11), 1931.)

An easily recognizable species characterized chiefly by the following characters:

Body black; front part of frons and face, hind part or hind half of scutellum, sides of tergites 2-4 broadly in ♂, sides of 2 and 3 in some ♀♀ and greater part of venter yellowish or yellowish red; legs black or very dark blackish brown, black-scaled. *Vestiture* with the hairs on head black, the scaling gleaming pale brassy yellowish; hairs in collar above, pleurae, metapleural tuft mainly yellowish to deep orange yellowish; those on prosternal part sometimes with much black hair and mesopleuron also with intermixed black hairs; hairs on sides of tergite 1 whitish to yellowish or even orange; those on sides of tergites 2-4 in ♂ and 2 and 3 in ♀ white; hairs on venter in both sexes mainly sericeous whitish or yellowish, but in ♀ those on last two sternites usually dark or with numerous dark ones; rest of hairs and bristles on body above and sides of abdomen black; scaling on thorax and scutellum above greyish yellowish, with streaks of dark ones on thorax in front; scaling on tergites 2-4 in ♂ conspicuously silvery white, very dense, leaving a broad middle part of 2 and much smaller middle parts of 3 and 4 black-scaled, but in a variety with these black-scaled parts much reduced, the silvery scaling extends almost right across; ♀ with only extreme sides of tergites 2 and 4 white-scaled and a broad interrupted band



TEXT-FIG. 263. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa dimidiata* Macq.

of white, not silvery, scales across 3; scaling on extreme sides of 2-4 below black in both sexes; scaling across last two tergites white, but silvery in ♂, denser and white in ♀; that on venter mainly whitish. *Wings* characteristically dimidiately infuscated dark blackish brown, the infuscation extending obliquely and more or less straight across from about, or less than, middle of axillary lobe to end of false vein in costal cell, slightly more extensive in ♀, occupying more of base of fourth posterior cell, almost basal half of discoidal cell, about or almost basal fourth of first posterior cell and at least basal third of enclosed submarginal cell and much more than basal half of marginal cell, ending more subtruncately or more truncately and very much nearer base of submarginal cross vein. *Antennae* with the style of joint 3 long, almost as long as or as long as or even slightly longer than joint. *Legs* with the front tibiae non-spiculate; middle and hind femora with numerous spines below. *Hypopygium* of ♂ (text-fig. 263) with the projecting aedeagus relatively long and spine-like; aedeagal process broad, much broadened and rounded apically, depressed or hollowed below as shown in figure; lateral struts relatively small, narrowed apically, and basal strut racket-shaped.

In the Durban, Transvaal, Rhodesian and South African Museums and Agricultural Department of Southern Rhodesia.

Length of body: about 11-14 mm.

Length of wing: about 11-13½ mm.

Locality: Natal, Zululand, Transvaal, Southern Rhodesia, Portuguese East Africa and South-West Africa.

—
Exoprosopa tuckeri Bezz.

(Bezzi, p. 169, *Ann. S. Afr. Mus.*, xviii, 1921.)

The ♂-type and two other somewhat denuded ♂♂ of this species in the collections before me superficially resemble *dimidiata*, but differ in the following respects:

Body with the greater part of head in front, entire scutellum, sides of abdomen and venter black; tibiae at least tending to be more brownish or reddish brown. *Vestiture* with the hairs in collar above, upper part of mesopleural tuft and the metapleural tuft more straw-coloured yellowish; hairs on lower parts of pleurae mostly dark or black; only the hairs on sides of tergite 1 and basal half of 2 white, the rest black; hairs on venter mainly dark or black; hair-like scaling on sides of thorax above in form of denser and paler whitish streaks; scaling on abdomen above black, greyish white or yellowish and white, the latter less silvery, arranged on sides of abdomen and very densely across last two tergites, much less broadly on sides of 2-4, the greyish yellowish ones intermixed with dark ones on disc and more especially across tergites 4 and 5; scaling on venter mainly dark, though gleaming pale. *Wings* also dimidiately infuscated, but the infuscation slightly more extensive

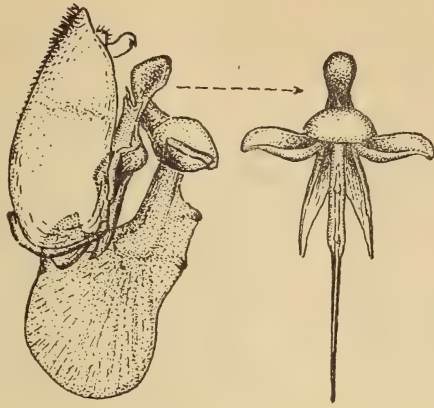
than in ♂ of *dimidiata*, more like ♀ of the latter, the margin of infuscation cutting across second vein beyond its middle; prediscoidal spot on the whole more conspicuous; first posterior cell more broadly open and less narrowed apically; discoidal cell more dilated apically, less acute. *Head* with the base of face slightly, though distinctly, depressed transversely. *Legs* with much fewer spines on middle and hind femora. *Hypopygium* (text-fig. 264) entirely different from that of *dimidiata* (cf. text-fig. 263); basal parts with the apical angles sharply pointed and hairs on dorsum markedly short; aedeagal process knob-like, cowl-shaped from side; lateral struts well developed and basal strut very strongly developed.

In the Transvaal and South African Museums.

Length of body: about $8\frac{1}{2}$ – $9\frac{1}{2}$ mm.

Length of wing: about $9\frac{1}{2}$ – $10\frac{1}{2}$ mm.

Locality: Damaraland and Kaokoveld in South-West Africa and Southern Rhodesia.

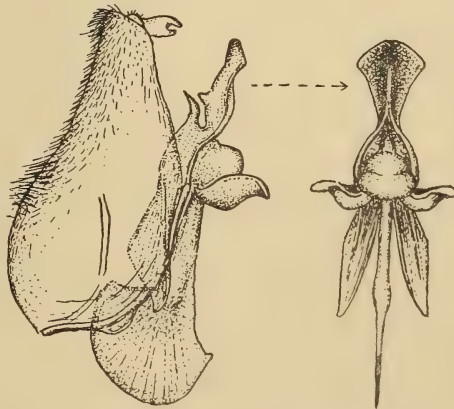


TEXT-FIG. 264. Side view of hypopygium and ventral view of detached aedeagal apparatus of ♂ *Exoprosopa tuckeri* Bezz.

Exoprosopa ovamboana n. sp.

Resembles *tuckeri*, but differs in the following respects:

Body with the hinder part of scutellum and extreme sides of tergites 2 and 3 reddish and hind margins of sternites and those of posterior tergites also broadly reddish. *Vestiture* with the hairs in collar above and on pleurae predominantly straw-coloured yellowish, those on venter whitish, not dark; hairs on sides of abdomen less dense; scaling on face denser, more greyish silvery whitish; pale or whitish scaling on abdomen in form of a narrow complete band across base of tergite 2, a broader white band across



TEXT-FIG. 265. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa ovamboana* n. sp.

3 and whitish, not silvery, ones across 6 and 7 and slightly more yellowish ones on sides of 4 and 5; scaling on venter gleaming silvery whitish, not dark; scaling on legs also with more pale ones. *Wings* with a slightly less extensive dimidiate infuscation, occupying only about half anal cell and only across basal cross vein of fourth posterior cell, extending obliquely across a smaller basal part of discoidal cell into marginal cell to a point some distance short of apex of false vein in costal cell, with the margin of infuscation more distinctly and more deeply indented or step-like at base of discoidal cell; submarginal cross vein shorter, straighter; sides of second posterior cell more sinuous. *Head* with the base of face not transversely depressed, the face relatively longer; antennal joint 3 longer, more elongate-conical, its style very much shorter, shorter than half length of joint. *Hypopygium* (text-fig. 265) entirely different, with the apical indentation of beaked apical joints rather deep; aedeagal process scoop-like, broadened apically; basal strut shaped as in side view on left.

From 2 ♂♂ in the South African Museum.

Length of body: about $8\frac{1}{2}$ mm.

Length of wing: about $8\frac{1}{2}$ –9 mm.

Locality: South-West Africa: Mafa in Ovamboland (Barnard, Feb. 1921).

The type-specimen was erroneously labelled as '*Thyridanthrax abruptus* Lw.' with which genus and species it has of course no connection whatever.

Exoprosopa masienensis Hesse

(Hesse, p. 29, *Mem. do Museu Dr. Alvaro de Castro*, No. 1, 1950.)

This species which I have described in 1950 also belongs to the *dimidiata*-section and is characterized as follows:

Body black; hind part or posterior margin of scutellum, especially in ♂, sides of tergites 2–3 (or 4) or sometimes also sides of 5 in ♂ and broad hind margins of sternites in ♂ and very narrow margins of sternites in ♀ reddish; legs dark, tibiae sometimes paler. *Vestiture* with the scaling on head in front gleaming silvery, relatively sparse; that on sides of face rather brilliant; hairs in collar above, mesopleural tuft, pleurae (excepting a few dark ones on lower anterior aspect of mesopleuron) straw-coloured yellowish; those on sides of tergites 1 and 2 more whitish; those on venter also pale; scaling behind eyes brilliantly silvery to iridescent silvery; that on thorax and scutellum greyish yellowish, with dark ones anteriorly; scaling on abdomen above dark or black and creamy yellowish, the latter arranged across hind margin of tergite 1, broadly across sides of 2, broadly across 3 and 4 and 6 and 7 and only on extreme sides of 5; rest of abdomen above with dark or black scales and also with black or dark ones across hind margin of last tergite; scaling on venter mostly greyish whitish or yellowish, with more dark ones posteriorly. *Wings* with the dimidiate infuscation dark blackish brown, slightly more extensive than in *ovamboana*, extending obliquely across from basal half of anal cell to apex of costal cell, its

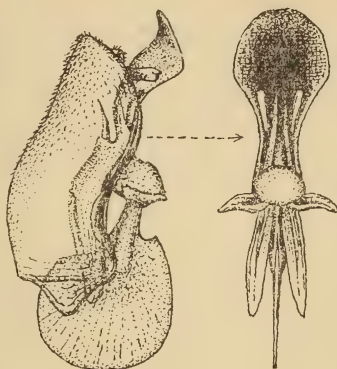
margin straight; greater part of axillary lobe clear; first posterior cell, though broadly open apically, narrower than in *ovamboana*; discoidal cell not so much broadened apically, its apical vein straight; squamae whitish, whitish-fringed; halteres with very pale yellowish white knobs. *Antennae* with joint 3 conical, its style long, at least half as long as joint or even longer. *Hypopygium* of ♂ (text-fig. 266) entirely different from that of *ovamboana* and also from that of *dimidiata*, with the aedeagal process much broadened and hollowed out apically, scoop-shaped; lateral struts relatively small and basal strut shaped as shown in figure.

In the South African Museum and Museu Dr. Alvaro de Castro.

Length of body: about $6\frac{1}{2}$ –8 mm.

Length of wing: about $6\frac{1}{2}$ –8 mm.

Locality: Portuguese East Africa and Zululand.



TEXT-FIG. 266. Side view of hypopygium and ventral view of detached aedeagal apparatus of ♂ *Exoprosopa masienensis* Hesse.

Exoprosopa metopargyra n. sp.

In its dimidiately infuscated wings this species resembles *tuckeri*, *ovamboana* and especially *masienensis*. It is however characterized as follows:

Body mainly black; hinder half of scutellum, sides of tergites 2–4 in ♂, a spot on sides of tergite 2 in ♀ reddish; venter even in ♂ mostly black, not with broad reddish hind margins as in *masienensis*; legs dark blackish brown, the tibiae paler. *Vestiture* with the scaling on greater part of frons and face in ♂ very dense, brilliantly silvery white, and in ♀ with more gleaming scales than in ♀ of *masienensis*; hairs in collar above, on entire pleurae and venter straw-coloured or whitish, those on sides of tergite 2 and 3 also white; scaling on sides of abdomen on all tergites white, relatively fewer black ones discally above than in *masienensis*; that on venter white. *Wings* similarly infused, the infuscation, however, more reddish brownish, slightly less extensive, the axillary lobe without or with scarcely any infuscation, in this respect thus also differing from that of *tuckeri* and *ovamboana*; infuscation in ♂ occupying less than basal half in discoidal cell, which is not the case in *masienensis*, and only extreme base of enclosed submarginal cell in ♂ is infuscated, a little more infuscated in ♀, but still less extensive than in ♀ of *masienensis*. *Head* with the frons and face relatively slightly broader, appearing more convex in profile; interocular space in ♂ relatively narrower than in *tuckeri* and *ovamboana*, more like that of *masienensis*; antennal joint 3 longer than in latter species, its style much shorter, shorter than half length of joint.

From a ♂ and a ♀ in the South African Museum.

Length of body: about 8–8½ mm.

Length of wing: about 8 mm.

Locality: Transvaal: Junction of Crocodile and Marico Rivers (Tucker, Feb. 1918).

Two much denuded ♀♀ from the Victoria Falls (Dec. 1938) in the collections before me are very closely related if not identical with this species. They, however, differ in having an entirely black scutellum and whiter, more brilliantly shining scales behind the eyes. In view of their denuded state and absence of a ♂ they are provisionally and doubtfully referred to this species.

Exoprosopa parvula-section

Representatives of this section are characterized by having bands of black and pale or whitish and yellowish scales on the abdomen of which that across tergite 2 is usually composed of a distinct, transverse, contrasting band of whitish or very pale ones across the base and a broader band of darker more yellowish and black or entirely black ones across hinder half, this latter band usually broader than rest of dark or yellowish bands; by having a style which is usually short or very short, not much more than half length of antennal joint 3; and in having no spot or only a very indistinct and faint one at base of discoidal cell in wings.

Exoprosopa parvula Bezz.

(olim *parva* Ric., nec Loew)

(Ricardo, p. 94, *Ann. Mag. Nat. Hist.*, viii (7), 1901 (as *parva*); Bezzi, p. 159, *Ann. S. Afr. Mus.*, xviii, 1921 (as *parvula* nom. nov. for *parva* Ric.); Bezzi, p. 318, *The Bombyliidae of the Ethiopian Region*, 1924.)

This slightly variable species, originally described from the Transvaal, is characterized as follows:

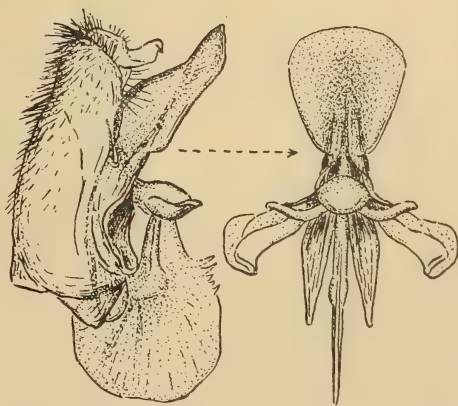
Body black; face or in some forms also sides of frons in front and antennal joints 1 and 2 to a variable extent yellowish or pale yellowish, with a central, dark, facial stripe of variable extent; postalar calli, greater part of scutellum, sides broadly of tergites 2–4 in ♂♂ or in some forms even broad sides of entire abdomen in ♂♂, sometimes sides of tergite 2 in some ♀♀, sometimes hind margins of tergites, greater part or even entire venter in ♂♂, hind margins of sternites or even base of venter in ♀♀, a spot on sides of tergite 2 and the legs yellowish or reddish. *Vestiture* with the hairs on frons black, yellowish or whitish on sides of face, but dark to a variable extent down middle of face, the scaling on front part of frons and on face dense, shining silvery whitish or even pale golden yellowish, silvery behind eyes; collar above and upper part of mesopleural tuft straw-coloured yellowish to even pale yellowish, more whitish or white on pleurae, in metapleural tuft and sides of tergites 1–3, with a rather conspicuous tuft of

white, hair-like scales on mesopleuron below wing-bases; hairs on venter also pale and whitish; a few prealar bristles, postalar and scutellar bristles, fine hairs on body above, hairs posteriorly on sides of tergites 2-4 and on sides of rest of abdomen and also apically and on last sternite in ♀♀ black, but in some forms with some intermixed yellowish bristly hairs on sides of abdomen; scaling on thorax and scutellum mainly dull greyish yellowish to yellowish, whiter on sides and across hind border of scutellum; scaling on abdomen dull or buff yellowish, white and dark, the white ones on sides of segments and across tergite 7 or 6 and 7, the dark ones usually discally across tergite 2, hind margin of 2 and hind margins of the others, giving abdomen a ringed appearance, the dark scaling in one form, however, absent or poorly developed; scaling on venter white; those on legs also pale, but those on outer apical halves of middle femora and on more than apical half of hind ones as well as on outer parts of hind tibiae dark. *Wings* greyish hyaline, with the base and anterior part darkened, yellowish brownish, the base and costal cell being more yellowish, the infuscation extending apically in marginal cell to opposite end of false vein and posteriorly more or less to proximal half of fourth vein, being, however, slightly more extensive in ♀♀, occupying more of bases of enclosed submarginal and first posterior cells and ending more truncately in marginal cell; infuscation in both sexes often extending faintly and to a variable extent across basal half of discoidal cell and in second basal cell, more so in ♀♀, the second basal cell in some forms also faintly tinged and sometimes almost as dark as anterior infuscation; faint spot-like infuscations usually present at bases of fourth, third and discoidal cells and on middle cross vein; first posterior cell narrowed apically; middle cross vein at about or a little beyond middle of discoidal cell; the latter cell subacute apically, not much broader apically than basally; squamae pallid or very pale yellowish, white-fringed; halteres yellowish. *Head* with the interocular space on vertex narrow; antennal joint 3 conical, its style usually less than half, sometimes a third, length of joint. *Legs* with numerous shortish spines on middle and hind femora. *Hypopygium* of ♂ as shown in text-fig. 267, with the aedeagal process broad and scoop-like.

In the British, Transvaal, Natal and South African Museums and in the Commonwealth Institute.

Length of body: about 9-12½ mm.

Length of wing: about 9-12½ mm.



TEXT-FIG. 267. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa parvula* Bezz.

Locality: Eastern Cape, Orange Free State, Transvaal, Natal, Zululand, Southern Rhodesia and South-West Africa.

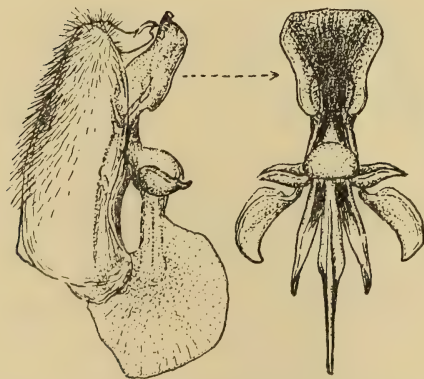
The species is slightly variable. A form occurring in South-West Africa has more extensive red on sides of abdomen in ♂, more conspicuous red hind margins of tergites in both sexes, more uniformly pale or yellowish scaling on abdomen above, less dark scaling on outer sides of middle and hind femora and the second basal cell in wings clearer in both sexes. Another form from the South-Eastern Cape has the infuscation in wings darker and also more evident in basal half of discoidal cell and second basal cell, bands of black scaling across abdomen broader, more conspicuous and also more black scaling on outer aspect of femora.

Exoprosopa apiformis n. sp.

A species very near to *parvula*, but differing in the following respects:

Body with the entire frons and greater part of face or discal part of face, excepting only sides below and buccal margin, black; scutellum only reddish posteriorly or even entirely black; abdomen entirely black above or in some ♂♂ distinctly less extensively reddish on sides of tergites 2–3(4) and venter also entirely black or with much narrower red hind margins; black and yellowish bands on abdomen above more regular, constant and conspicuous, without any conspicuous white scales on sides of pale bands, only the last tergite being white-scaled and with only a broadish basal band of yellowish scales on tergite 2 (in *parvula* usually with a narrow yellowish basal band separated from a middle yellow band by black scales); sides of tergites 1–3 usually entirely pale-haired. *Wings* with the anterior infuscation fainter, more diffuse, less extensive and in ♂ more reduced and almost confined to extreme costal part; second basal cell even in ♀ clearer; upper vein of discoidal cell straighter, less

convexly curved apically and cell more acute apically. *Legs* black or dark. *Hypopygium* of ♂ (text-fig. 268) differs from that of *parvula* (cf. text-fig. 267) in having the scoop-like, ventral, aedeagal process more truncate apically and shaped slightly differently. From *cervina* which it superficially resembles it may at once be distinguished by the silvery scaling on face, the more regular transverse bands across abdomen, the longer antennal style and the less truncated and dilated discoidal cell.



TEXT-FIG. 268. Side view of hypopygium and ventral view of the detached aedeagal apparatus of ♂ of *Exoprosopa apiformis* n. sp.

From 10 ♂♂ and 10 ♀♀ (holotype in the Transvaal Museum, allotype

in the South African Museum and paratypes in both these Museums and also in the British and Albany Museums).

Length of body: about 8-9½ mm.

Length of wing: about 8-9½ mm.

Locality: Eastern Cape: Resolution, Albany Dist. (Walton, 1 and 14 March 1928) (types); Resolution (Walton, 6 March 1928); Fort Brown (Walton, 7 March 1930); Fort Beaufort (Mus. Exp., March 1954); Gardiner's Drift near Adelaide (Mus. Exp., March 1954); Boesmans River near Grahamstown (Mus. Exp., March 1954); Katberg (Turner, 11-18 Feb. 1933); Queenstown (Turner, 16 Jan.-10 Feb. 1923). Natal: Estcourt (Marley, 23 Dec. 1941). Transvaal: Zwartruggens, Marico (Brauns, 15 Jan. 1921); Pretoria (Zumpt, 30 Jan. 1949).

Exoprosopa paucispina n. sp.

Another species resembling *parvula*, but nearer to *apiformis*, agreeing with the latter also in the characters distinguishing it from *parvula*, but differing in the following respects:

Scutellum more extensively reddish, at least red in hinder half; face and head in profile slightly more convexly rounded, the face blunter apically; abdomen with slightly whiter scaling on sides and with dark, not pale, scales across hind margin of last tergite; wings slightly more greyish hyaline, with a more reddish tinge, the anterior darkened part distinctly fainter than in both *parvula* and *apiformis*, slightly more reddish yellowish, less delimited, more imperceptibly grading into clearer parts, the spot-like infuscations at bases of fourth and third posterior cells and discoidal cell almost imperceptible, and veins more reddish; middle and hind femora with distinctly fewer spines and hind ones with only a few long spines near apex.

From 1 ♀ in the Transvaal Museum.

Length of body: about 10 mm.

Length of wing: about 10 mm.

Locality: Transvaal: Pienaars River (v. Jutrzencka, 1898).

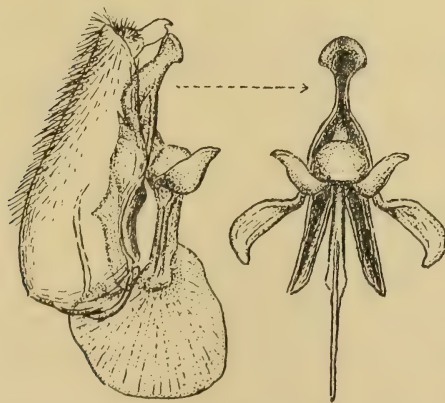
Exoprosopa cervina Bezz.

(Bezzi, p. 171, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 285, *The Bombyliidae of the Ethiopian Region*, 1924.)

This South-West African species is characterized as follows:

Body mainly black; an oblique line below each antenna, extreme sides of face and broad buccal margin to a variable extent, postalar calli, apical two-thirds or slightly more of scutellum, sides of tergites 2 and 3 to a variable extent in ♂, sometimes also in some ♀♀, hind margins of tergites, especially posteriorly, sutural parts of pleurae and hind margins of sternites, broader in ♂, yellowish or reddish; legs dark or dark blackish brown, the tibiae usually more yellowish. *Vestiture* with the hairs on head in front mostly dark, those anteriorly on extreme

sides of frons, occasionally on front part of frons, below antennae and on sides of face gleaming golden or yellowish, the scaling yellowish or dull yellowish; hairs in collar above and mesopleural tuft straw-coloured or yellowish, becoming more whitish below and in metapleural tuft; hairs on sides of tergite 1 and basally on sides of 2 and 3 whitish, those apically on sides of the latter dark or with some dark ones; rest of hair on sides of abdomen composed of yellowish and dark ones intermixed, usually with more yellowish ones and with yellowish to golden ones also on last tergite; hairs on thorax, sides of thorax, the thoracic and scutellar bristles and hairs on abdomen above black; hairs and scaling on venter whitish; scaling on body above narrow, lanceolate, mainly dull yellowish to slightly deeper yellowish in some forms, with a conspicuous and broadish band of white scales across base of tergite 2, a patch of white ones on sides of 3, white scaling across last two tergites and sometimes also with some sparse white ones on sides of 4 and 5, without any dark scaling or with only very narrow bands of dark ones across hind margins of 2-4; scaling on legs mostly yellowish, sometimes dark on outer surfaces of femora. *Wings* greyish hyaline, with the base, costal cell, first basal cell and base of marginal cell in ♂ yellowish or yellowish brownish, more extensive in ♀ where basal two thirds of marginal cell to opposite end of false vein as well as base of first posterior cell and upper part of basal half of discoidal cell are also tinged; spot-like infuscations of variable intensity present at bases of fourth and third posterior and enclosed submarginal cells and on middle cross vein and often very faintly indicated at base of discoidal cell and on apical cross vein of latter; discoidal cell broadish and shortish, more so in ♂, dilated leek-like apically in ♂, less so in ♀ where its apical cross vein is also longer, slightly more sinuous; middle cross vein in ♂ usually before middle of discoidal cell, in ♀ tending to be more at middle or just beyond or before middle; first posterior cell, though narrowed, broadly open apically. *Head* with the interocular space on vertex broad; antennal joint 3 elongate, its



TEXT-FIG. 269. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa cervina* Bezz.

style very short, stout, even shorter than antennal joint 2. *Legs* with the front tibiae non-spiculate; middle and hind femora with well-developed spines. *Hypopygium* of ♂ (text-fig. 269) differing only slightly from that of *heros* and *stannusi*, the ventral aedeagal process similarly shaped (cf. text-figs. 251 and 243).

In the Transvaal and South African Museums (Bezzi's types are in the South African Museum).

Length of body: about 10-12 mm.

Length of wing: about 10-13 mm.

Locality: Various localities in South-West Africa and the Transvaal.

A headless ♀-specimen from Pretoria in the Commonwealth Institute and a ♂ also from Pretoria differ from the typical form only in having the infuscation in wings slightly more extensive and the spots more conspicuous.

The species is entirely different from *luteicosta* and cannot be considered as a variety of it as Bezzi maintained. It has no band of white scales across tergite 4, no dense, white, hair-like scaling on sternopleuron, no dark scaling on sternite 5, etc.

Exoprosopa griqua n. sp.

Very near to *cervina*, but differing in the following respects:

Face with less yellowish anteriorly on sides and mainly with black hairs in ♂ and numerous black ones in ♀; style of antennal joint 3 distinctly very much shorter, scarcely discernible separately, shorter than antennal joint 2; scaling on abdomen above composed of white, yellowish and black ones, the white ones arranged in complete transverse bands on tergites 2 and 3 and also on 6 and 7 (in *cervina* whitish scaling is only present on extreme sides), with the bands of black scaling across tergites 4 and 5 and across hind margins of other tergites broader, more conspicuous than in *cervina*; hairs on sides of abdomen from apical half of tergite 2 to hind margin of 7 or 8 mainly black or at least with fewer pale ones intermixed; wings shorter in relation to body and the extensive infuscation anteriorly in ♀ slightly darker than in ♀-*cervina*; and tibiae on the whole darker.

From 1 ♂ and 8 ♀♀ in the South African Museum.

Length of body: about 9-9½ mm.

Length of wing: about 9-9½ mm.

Locality: Griqualand West: Kuruman (Mus. Exp., Oct. 1939) (holotype); Vryburg (Mus. Staff, Oct. 1939) (allotype); 26 miles north of Postmasburg (Mus. Staff, Oct. 1939).

Exoprosopa ogilviei n. sp.

Body black; an oblique line below antennae, extreme sides of face and buccal rim, antennae (excepting upper surface of joint 3), posterior calli, greater part of scutellum reddish or yellowish red; legs very dark blackish or reddish brown or black; the tibiae slightly paler, black-scaled. *Vestiture* with the hairs on head in front black; collar above, upper parts of mesopleural tuft and propleural tuft yellowish; rest of hairs on thorax above, thoracic and scutellar bristles, hairs on rest of pleurae, including most of metapleural tuft, black; plumula and some hairs in upper part of metapleural tuft, tuft at base of abdomen, hairs on sides at extreme base of tergite 2 and those on sternites 1-3 white or whitish; rest of the rather dense ones on sides of abdomen, those across hind margin posteriorly and on abdomen above black; scaling on head in front greyish yellowish, white behind eyes, mainly dull yellowish on thorax above, but with streaks of dark ones anteriorly and across base of scutellum; scaling on abdomen

above black, white and dull yellow, the white ones arranged as a broad basal band across tergite 2, a broad band across apical half of 3, to a variable extent across 5, broadly across 6 and 7 and on sides of 4, with black scaling across hind margin of tergite 1, across hinder half of 2, basal half and hind margin of 3 and bases and hind margins of 4 and 5, the yellowish scaling narrowly across hind margin of basal white band, sparsely across base of 3, discally across 4 or 4 and 5; scaling on venter white basally on sternites 1-3, dark or black across 4 and 5 and with sparser greyish white ones on 6 and 7. *Wings* greyish hyaline, with the base and costal part to proximal half of fourth vein dark brownish to blackish brown, slightly more extensive in ♀, the dark extending in marginal cell to near level of end of false vein and also slightly more to bases of enclosed submarginal and first posterior cells than in ♂, base of discoidal cell and second basal cell in ♀ also very slightly tinged more greyish; faint infuscations present on cross veins at bases of first, third, fourth posterior cells and discoidal cell; discoidal cell in ♂ relatively broader, more dilated leek-like apically, both its upper and lower veins curved outwards in apical part to an equal extent which is not the case in ♀ in which the apex of the cell is slightly more acute, its apical vein being slightly longer, more sinuous; submarginal cross vein sinuous; squamae yellowish, dark-fringed; halteres blackish brown. *Antennae* with joint 3 conical, longer than 1 and 2 combined, its style stoutish, about or nearly half as long as joint in ♂ and about a third its length in ♀. *Legs* with the front tibiae non-spiculate; middle and hind femora with numerous well-developed spines. *Hypopygium* of ♂ remarkably similar to that of *heros* and *cervina*, especially the latter (cf. text-fig. 269), differing from that of *heros* (cf. text-fig. 251) in having the lateral angles of broadened apical part of aedeagal process more prominent and sub-hook-like, its neck region thinner, more slender and basal strut more chopper-shaped. From that of *cervina* it differs in having the lateral struts relatively broader, less pointed, more horizontal and the basal strut relatively longer, more chopper-shaped.

From 2 ♂♂ and 2 ♀♀ (types in the Commonwealth Institute and paratypes in South African Museum).

Length of body: about 12-13 mm.

Length of wing: about 12-13 mm.

Locality: Transvaal: Wonderboom near Pretoria (Ogilvie, 4 Oct. 1931) (types); Wonderboom (Mackie, Oct. 1931); Pretoria (Munro, 1 Jan. 1913).

From *heros* and related species to which it shows affinity it may, however, at once be distinguished by its much less extensively infuscated wings, extensive black hair on pleurae and in metapleural tuft, longer and more slender style, etc. Superficially it also resembles *thoracica* Bezz. and *vumbuënsis*. From the former it may, however, at once be distinguished by the black hair on the pleurae, the paler and not orange hairs in collar and upper part of mesopleural tuft, the basal and not apical pale or white band on abdomen above and pale scaling on tergites 4 and 5, dark hair on sides of face, etc. From *vumbuënsis* it differs in having a white band basally on abdomen, white scaling on venter,

shorter wings, clearer second basal cell in wings, spots on certain cross veins, differently shaped discoidal cell, etc. From *luteicosta* which it also resembles it may at once be distinguished by the much longer style, black hair on pleurae, absence of dense white scaling on sternopleuron and coxae, complete white band across tergite 3, slightly differently shaped discoidal cell and entirely differently shaped aedeagal process.

Exoprosopa porricella n. sp.

A smallish species which resembles a small *luteicosta* as far as its wing-characters are concerned, but characterized as follows:

Body almost entirely black, only extreme sides of face, buccal rim and a line below antennae yellowish; hinder discal part or hind margin of scutellum in some cases and narrowish hind margins of sternites obscurely reddish; legs very dark blackish brown, the tibiae paler. *Vestiture* with all the hairs on head in front black, the scaling on it greyish or dull yellowish; hairs in collar above and on pleurae straw-coloured yellowish, but with intermixed black ones on lower parts of mesopleuron, the pale hairs and scaling on pleurae also being more fulvous or reddish golden; metapleural tuft whitish, its lower part more yellowish or pale fulvous; tufts at base of abdomen and hairs at base of venter whitish; rest of hairs on sides of abdomen, on thorax and abdomen above and bristles on sides of thorax and on scutellum black; scaling on thorax above greyish, more whitish on sides and across hind margin of scutellum, but with much dark scaling in streaks on thorax anteriorly and across base of scutellum; scaling on abdomen above dull or greyish yellowish, white and black, the white ones concentrated in a postmedial patch on each side of tergite 2, as a broad transverse patch on sides of hinder aspect of 3 which may also occur as a transverse band across this tergite, on sides of 4 and 5 and more or less across 6 and 7, the black ones scattered among yellowish ones across basal half of tergite 2, across hind margin of 2 and basally and apically across 3 and 4 and more or less discally across 4 and 5 where yellowish ones are also evident discally; scaling on venter whitish or greyish whitish; that on legs dark above, greyish yellowish on lower parts of femora. *Wings* with a pattern similar to *ogilviei* and *luteicosta*, greyish hyaline and darkened at base and along fore border to proximal half of fourth vein, the base of discoidal cell and second basal cell, though clearer than infuscated part, nevertheless less clear than hyaline hinder part; spots on cross veins indicated, but that at apex of discoidal cell very faint and that at base of second submarginal cell wanting; discoidal cell broadened, leek-like apically, truncate apically, its apical cross vein straight; first posterior cell broadly open; second posterior cell with its sides sinuous; submarginal cross vein sinuous; halteres blackish brown. *Antennae* with joint 3 elongate-conical, its style short, a third or fourth length of joint, stoutish, inserted a little to side of apex of joint. *Legs* with well-developed spines on middle and hind femora and with the spicules on upper outer row on hind tibiae not denser than in rest of rows.

From 3 ♀♀ (type in the Transvaal Museum).

Length of body: about 9-9½ mm.

Length of wing: about 9-9½ mm.

Locality: Transvaal: Pretoria (Impey, 9 Dec. 1915) (type) and two ♀♀ without locality label, but probably also from Pretoria.

The presence of white scaling or a patch of white scales on apical aspect on sides of tergite 2 and dark scaling, or at least more dark scaling, on sides of basal aspect of this tergite is not found in other South African species except in *thoracica*. From *ogilviei* with which its wing-infuscation may be confused it may at once be distinguished by the predominantly pale hair on pleurae, absence of a broad white band across base of tergite 2, but only a white patch on apical part on sides of this tergite, darker scutellum, slightly more truncate discoidal cell, absence of longish scales and denser spicules on outer sides of hind tibiae.

Exoprosopa luteicosta-section

Characterized as follows:

Wings with the base and anterior costal part infuscated to a variable extent, this infuscation more or less well marked off, with spot-like infusions on all or some of the cross veins and bifurcations usually present or indicated and sometimes also with distinct or faint, narrowish, fuscous borders along the veins; discoidal cell usually slightly broadened or dilated leek-like apically; abdomen with the transverse bands of pale scaling usually more whitish or with more white scales, those across base of tergite 2 white even if those across 3, 4 and 5 are more creamy yellowish; hairs on pleurae not entirely and contrastingly snow-whitish and sternopleuron usually with a dense patch of snow-white or even silvery gleaming scales.

Exoprosopa luteicosta Bezz.

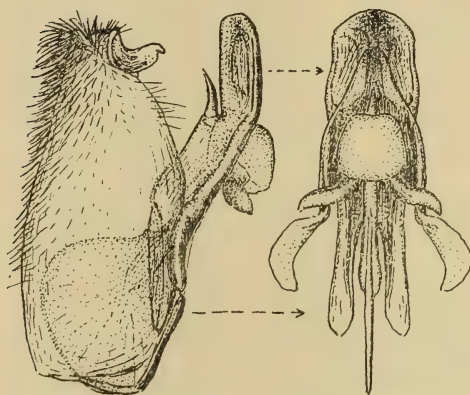
(Bezzi, p. 161, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 285 and 350, *The Bombyliidae of the Ethiopian Region*, 1924.)

Bezzi's description of this variable species was actually based on specimens from South Africa and South-West Africa, though he stated at the time (*loc. cit.*, 1921) that he had described the species from type-material from East Africa and presumably in a paper on the Bombyliidae of the Budapest Museum. As I have already stated elsewhere this paper of Bezzi was never published. In his subsequent monograph (1924) he, however, merely states that the species was described in his memoir on the South African Bombyliidae, but that it was also represented in the Budapest Museum. In his specific description he states that the South African specimens are larger and have a more extended and darker wing-pattern. There is no doubt that his description was based solely on the South African specimens. The specific identity of the East African specimens, the types to which he refers, may therefore or may not be the same as the South

African species. At most they can only be considered as 'chirotypes'. As two of the original specimens on which he actually based his description are in the collections before me and in view of the fact that there are several other species resembling *luteicosta*, I base the specific identity of *luteicosta* on a ♂ from Ovambo-land and a ♂ from Potchefstroom identified by Bezzi and also a ♀ from Tsumeb which Bezzi subsequently identified as *luteicosta* (p. 170, loc. cit., 1921). As the species is, however, variable and widely distributed in Southern Africa it is quite possible that Bezzi's East African specimens and also those from the various parts of East and Tropical Africa which he enumerates in his monograph may belong to this species or varietal forms of it. On the other hand it is very doubtful whether the two specimens from Grahamstown (in his private collection) which Bezzi also referred to *luteicosta* (p. 161, loc. cit., 1921) really belong to this species. All the representatives of *luteicosta* s. str. in the extensive collections before me come from the northern parts of South Africa and none from the Cape Province. The only Cape representative of this section is the 'doubtful specimen' from Touws River to which Bezzi refers (loc. cit.) which obviously belongs to another species and which I am describing as a new species further on. The species *luteicosta* s. str. is characterized as follows:

Body mainly black; front half of frons and entire or greater part of face reddish to a variable extent in typical South-West African form, only two small antero-medial spots on frons and sometimes front of face being dark, but in transitional and other Transvaal and Rhodesian forms these parts are black to a variable extent, the front half of face being darkened or entire frons and face may be darkened or black; postalar calli and greater part or entire scutellum, and in typical form sometimes sides of tergites 2-3 in ♂ obscurely, reddish, the sides of abdomen black in ♀ and in ♂ with dark frons and face; hind margins of sternites in red-faced ♂♂ and to a certain extent also in black-faced forms also reddish to a variable extent; legs very dark or black. *Vestiture* with the hairs on basal half of frons black, those on front half and on face and sometimes on antennae yellowish to a variable extent in typical form, the apical tuft and some hairs on sides of face mostly dark; hairs on entire head in front, excepting on sides of face, entirely dark or intermixed with pale ones in transitional and black-faced forms; scaling on head in front gleaming yellowish to pale brassy yellowish, only that on sides of face more shining silvery; hair in collar above, mesopleural tuft and on pleurae yellowish, becoming more whitish below and with dense, conspicuous, whitish, hair-like scaling on sternopleuron and sometimes also a whitish gleaming tuft in front of wing-bases; scaling on coxae also white; metapleural tuft usually pale, whitish or pale yellowish; hairs on sides of abdomen basally and basally on tergite 2 white; those on sides of rest of abdomen fairly dense, black, but usually with some yellowish bristly hairs intermixed on sides of 2-4; fine hairs on thorax and abdomen above and bristly ones and bristles on sides of thorax, postalar and scutellar bristles black; hairs on venter gleaming whitish in basal half, more yellowish or golden posteriorly, mostly black on last sternite; scaling on thorax and scutellum mostly yellowish

to dull ochreous yellowish, with streaks of darker, more brownish, ones anteriorly, the streak on sides more whitish or very pale yellowish; scaling on abdomen above white, yellowish and dark brown or black, the white ones arranged as a broad basal band across base of tergite 2, a dense patch on sides of 3, a broadish, transverse band across base of 4 and across 6 and 7, the band across 4 sometimes more yellowish discally, the yellowish or very pale yellowish ones usually across edge of white basal band, discally across base of tergite 3, especially in ♀ (usually dark in ♂), discally across 4 in most ♀♀, with the dark ones on rest of surface above, but more especially across apical half of tergite 2, hind margins of tergites and to a variable extent in more ♂♂ than ♀♀ also discally across 3 and 5; scaling on venter white, dark across sternite 5 and sparser white on 6 and 7; that on legs yellowish on femora above in more typical form, but entirely dark or black in other forms. *Wings* longish, hyaline to slightly greyish hyaline, but with the base and costal cell and anterior part up to fourth vein and apically obliquely in marginal cell to end or near end of first vein luteous or yellowish to reddish brownish, the infuscation in ♀ usually more distinct and slightly more extensive, occupying slightly more of bases of enclosed submarginal and first posterior cells and extending apically under first vein to its end; second basal cell usually clear, but sometimes feebly tinged in some ♀♀; veins reddish brownish; infusions or spot-like infuscations present on basal cross veins of all the posterior cells, the discoidal, enclosed submarginal and second submarginal cells to a variable extent, sometimes also on submarginal cross vein; discoidal cell broadened leek-like apically, its upper and lower veins



TEXT-FIG. 270. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa luteicosta* Bezz.

equally curved outwards apically, its apical vein shortish, straight; middle cross vein usually a little before middle of discoidal cell; first posterior cell narrowed, but open apically; sides of second posterior cell usually only slightly sinuous; third posterior cell much shorter than fourth; halteres brownish, their knobs yellowish or pale above, rarely dark. *Antennae* with joint 3 elongate, conical, longer than 1 and 2 combined, its style pale or sometimes yellowish, stoutish, short, usually not much longer than joint 2. *Legs* with numerous spines on middle and

hind femora and with dense spicules in outer apical row on hind tibiae; front tibiae non-spiculate. *Hypopygium* of ♂ (text-fig. 270) with the aedeagus well developed; ventral aedeagal process broad, scoop-like; lateral struts smallish, reduced.

In the Albany, Transvaal, Rhodesian and South African Museums.

Length of body: about $9\frac{1}{2}$ – $15\frac{1}{2}$ mm.

Length of wing: about $10\frac{1}{2}$ – $17\frac{1}{2}$ mm.

Locality: Transvaal, Zululand, Rhodesia, Portuguese East Africa and South-West Africa.

Exoprosopa luteicosta var. *metapleuralis* n.

Four ♂♂ and 2 ♀♀ from Zululand and Mozambique in the collections before me appear to constitute a distinct variety of *luteicosta*, differing from the dark-headed form of the latter in having more whitish hair in collar above and mesopleural tuft, more black hairs on humeral tubercle, black bristly hairs in anterior part of mesopleural tuft, an entirely black metapleural tuft, more or even predominantly dark scaling on last two sternites, a slightly more extensive infuscation in anterior part of wings, even the second basal cell more greyish.

In the Durban, Transvaal and South African Museums (holotype in the South African Museum and allotype in the Durban Museum).

Locality: Zululand: Manguzi River near Maputo (Bell-Marley, Nov.–Dec. 1945 (types); Maputo (Bell-Marley, Nov. 1935); Shangawana (Bell-Marley, 3 Oct. 1938). Portuguese East Africa: Inyack Isle (Breyer, Sept. 1919).

Exoprosopa majuscula n. sp.

(Syn. = *luteicosta* Bezzi, in part, p. 161, *Ann. S. Afr. Mus.*, xviii, 1921.)

The large ♂-specimen of this species from Touws River in the South African Museum was doubtfully referred to *luteicosta* by Bezzi. It is, however, obviously a distinct species of which both the ♂ and ♀ differ from the latter in the following respects:

It is relatively much larger; sides of tergites 2 and 3 and broadish hind margins of tergites in ♂ more broadly and distinctly ferruginous reddish; extreme sides of tergites 2 and 3 in ♀ also reddish; legs rather stoutish, paler, reddish brown to reddish, the spines on middle and hind femora and spicules on tibiae distinctly very much shorter. *Vestiture* with the hairs on sides of abdomen distinctly shorter, sparser; bands of white or whitish scaling across all the tergites almost equally broad and conspicuous in both sexes, that across 3 in ♂ discally at least half length of segment and scarcely less white than rest of bands and not dark as in most ♂♂ of *luteicosta*; face with a distinct band of slightly denser and whiter or paler scaling arcuately across its base. *Wings* not longer than the body, with darker anterior infuscation, darker veins; middle cross vein slightly beyond middle of discoidal cell; discoidal cell slightly but distinctly, more subacute apically, less leek-like and truncate apically, its apical vein distinctly less perpendicular to hind margin; second posterior cell much broader and shorter and third posterior cell relatively shorter.

From a ♂ and a ♀ in the South African Museum.

Length of body: about $18\frac{1}{2}$ –19 mm.

Length of wing: about $18\frac{1}{2}$ –19 mm.

Locality: Cape Province: Touws River (16 Jan. 1883) (holotype). Tankwa Karoo between Ceres and Sutherland (Mus. Exp., Jan. 1949) (allotype).

Exoprosopa barnardi n. sp.

A solitary ♂-specimen from South-West Africa in the collections before me can hardly be considered as a varietal form of the red-faced typical *luteicosta*. It differs from the latter in the following respects:

Antennae with at least two basal joints yellowish, the style pale, not stoutish, but slender, quite as long as or even longer than antennal joint 2; middle part of head in front reddish, greater part of face black; sides of thorax in front of wing-bases and humeral tubercle with yellowish and not black bristly hairs, only 2 or 3 prealar bristles being black; abdomen with pale and not dark scaling across hind margin of tergite 1, with very much narrower pale band across base of 2 and with some white scaling also on sides of 5; sternite 5 also with pale or more whitish scales; anterior infuscation in wings distinctly more extensive than in ♂ of *luteicosta*, more like in ♀ of the latter, at least basal halves of enclosed submarginal and first basal cells also infuscated; spot-like infuscations on cross veins larger, more conspicuous; third posterior cell relatively shorter; legs black-scaled.

Type in the South African Museum.

Length of body: about $15\frac{1}{2}$ mm.

Length of wing: about 17 mm.

Locality: South-West Africa: Otjikoto (Barnard, Feb. 1921).

Exoprosopa atrinasis Speis.

(Speiser, p. 80, *Kilimandjaro-Meru Exp.*, ii, part 10, 1905–1906; Bezzi, p. 477, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 284 and 343, *The Bombyliidae of the Ethiopian Region*, 1924.)

A ♀-specimen in the collections of the South African Museum was labelled as *atinasis* Speis. by Bezzi in 1921 (loc. cit.). Speiser's original description of this species is, however, so unsatisfactory that it is impossible to say whether Bezzi's identification of this species is correct without comparing it with Speiser's original type. This specimen is therefore provisionally retained in Speiser's species. It is obviously very near *luteicosta*, agreeing with the dark-faced form of the latter in the colour of the hairs and scaling, arrangement of the scaling on the abdomen and in other details, but differing in the following respects:

Wings with the brownish anterior infuscation distinctly more extensive, occupying more of the apical part of marginal cell, the enclosed submarginal and first posterior cells, the upper part of discoidal cell along fourth vein also

nevertheless more tinged than in *luteicosta*; all posterior cells bordered with fuscous and the spot-like infuscations on cross veins more distinct and conspicuous; discoidal cell itself in this ♀ at least more sub-parallel-sided in apical half; third posterior cell relatively much shorter than fourth. Front tarsi relatively very much longer, more slender and with more and denser stiffish hairs above.

Length of body: about 15 mm.

Length of wing: about 18 mm.

Locality: Northern Rhodesia and according to Bezzi also Kenya and Abyssinia.

Exoprosopa atrisquama n. sp.

Another distinct species, represented by a somewhat denuded ♀-specimen in the Transvaal Museum collections, also belongs to the *luteicosta*-series, from the ♀ of *luteicosta* of which it differs as follows:

Head and face in front entirely black, the yellowish buccal rim being much narrower, with all the hairs and scaling on head in front black, the scaling gleaming like anthracite; scaling on thorax above, on pleurae and coxae also predominantly dark or black; scaling on last three sternites not whitish, but dark or blackish; scaling on abdomen above (as far as this is not denuded in specimen) like that of *luteicosta*, but with more black ones. *Wings* relatively much shorter, with the anterior infuscation darker and second basal cell distinctly more tinged, the clear parts of wings distinctly more greyish, with the veins in clearer part faintly, but distinctly, bordered with fuscous, the spot-like infuscations on cross veins less distinct; discoidal cell also truncate, but less broadened leek-like apically; halteres and knobs dark brown; style of antennal joint 3, though also short and stout and not longer than joint 2, not terminal at apex of joint 3, but at side near apex of joint 3 as in *porricella*.

Length of body: about 11 mm.

Length of wing: about 11½ mm.

Locality: Transvaal: Pretoria (Munro, 24 Jan. 1914).

Exoprosopa brachipleuralis n. sp.

Still another species which resembles *luteicosta* in the colour of its hair and scaling, dark legs and wing-infuscation may, however, at once be distinguished by the following characters:

Wings very much shorter in relation to body, broader, more extensively and more broadly infuscated in anterior part up to fourth vein and apically up to level of false vein in costal cell where, however, it ends broadly and truncately in marginal cell, extending also over at least basal half of enclosed submarginal cell and basal third of first posterior cell; discoidal cell shortish, broad, also truncate apically, but less broadened leek-like apically; knob-like convex mesopleuron distinctly very much smaller, very much shorter than pteropleuron,

whereas in *luteicosta* it is broadly boss-like, much larger and subequal in length to pteropleuron; face with fewer pale hairs on sides and only extreme side of front part of frons and sides of face reddish; tergite 3 basally and discally with a very narrow whitish band; tergite 4 with a broad white band like base of 2 and across 6 and 7; tergite 5 with only dark scaling; sternite 5 also with dark scaling as in typical *luteicosta*; legs entirely dark-scaled, with fewer spines on outer lower aspect of middle and hind femora, with the front legs shorter, the front tarsi in ♂ much shorter, with shorter and less dense stiffish hairs on them and with the basal joint thicker in relation to rest of tarsal joints; basal tooth of claws also relatively shorter, smaller.

From a ♂ in the South African Museum.

Length of body: about 12 mm.

Length of wing: about $12\frac{1}{2}$ mm.

Locality: Zululand: Pongola River (Bell-Marley, Oct. 1929).

Exoprosopa engyoptera n. sp.

Another ♀-specimen in the collections before me appears to represent a new species which is also very near *luteicosta* and *atrinasis* as defined by Bezzi, and though coming from beyond the geographical limits to which this memoir is confined, I nevertheless take this opportunity of describing it here.

It is characterized by its long and rather narrow wings which are infuscated reddish brownish in the costal part up to fourth vein and apically to end of first vein, but with the medial and apical parts of the marginal and enclosed submarginal cells clearer and with narrow fuscous borders to all the apical and posterior veins and cross veins; spot-like infuscations distinct and present on all the cross veins; discoidal cell rather long, narrowish, truncate apically, scarcely broadened leek-like in apical part; middle cross vein a little before or a little beyond middle of discoidal cell; first posterior cell broadly open though slightly narrowed apically; second posterior cell not or scarcely narrower on hind border than third; the latter only a little more than half length of fourth posterior cell; scaling on abdomen above like that of *luteicosta*, but the discal parts of the whitish bands across tergites 3-5, however, all equally broad and yellowish and dense scaling on sternopleuron and coxae slightly more yellowish; middle part of head across antennae reddish to a variable extent as in transitional form of *luteicosta*; legs, however, not entirely dark or black-scaled, but with much yellowish scaling on the femora and hind tibiae with fewer and not dense spicules and scales in outer upper row; front tarsi with distinctly denser and more numerous stiff hairs than in ♀ of *luteicosta*; antennal joint 3 relatively shorter, more conical, its style distinctly longer, more slender, about a third length of the joint and much longer than joint 2.

From *atrinasis*, as defined by Bezzi, it differs in having narrower and longer wings, a much longer style, a reddish mark across middle of head, shorter front tarsi and less dense spicules and scales on outer aspect of hind tibiae.

From a ♀ in the Transvaal Museum.

Length of body: about $12\frac{1}{2}$ mm.

Length of wing: about 17 mm.

Locality: British East Africa: Kilwezi (Feather, 1916).

Exoprosopa de Castroi Hesse

(Hesse, p. 29, *Mem. do Museu Dr. Alvaro de Castro*, No. 1, 1950.)

Like the preceding species this and the following species, which I described from Mozambique in 1950, belong to a narrow-winged series of the *luteicosta*-section or *busiris*-group of Bezzi, the various East African species of which are difficult to separate, but which nevertheless show distinct specific differences. This species is characterized as follows:

Body mainly black; margin of buccal cavity yellowish; third antennal joints with a dark reddish brown tint; scutellum reddish; legs black. *Vestiture* with the hairs on head, face above and apex of face black; those on sides of face pale golden yellowish; hairs in collar above, mesopleural and metapleural tufts pale yellowish; those on lower parts of pleurae, sides of tergite 1 and on base of 2 laterally and on at least sternites 1-4 distinctly paler, sericeous whitish; fine hairs, bristly hairs and bristles on thorax and scutellum above, hairs on sides of abdomen, on posterior part of venter and intermixed ones on coxae black; scaling on head in front gleaming brassy yellowish, more brilliantly silvery on sides of face and behind eyes; fine scaling on thorax and scutellum above yellowish, black across base of latter; streak on sides of thorax above also yellowish; a patch of dense scaling on sternopleuron snow-whitish; scaling on abdomen above white, pale creamy yellowish and black, the pale ones arranged as broadish transverse bands across bases of tergites 2-6 and across 7, the sides of the bands broader and white and those across 6 and 7 entirely white, those discally across 2-5 more creamy yellowish and with the rest of scaling above black; scaling on sternites 1-4 conspicuously dense and white, that on rest of venter posteriorly dark or black; scaling on coxae also fairly dense and white scaling on legs black, gleaming like graphite or anthracite. *Wings* longish, narrowish, more or less uniformly tinted dark mauvish brownish, the middle parts of the cells slightly clearer, the anterior costal part up to third vein becoming imperceptibly, but distinctly, darker; alula and squamae rather conspicuously yellowish; cross veins, especially apical cross veins of first and second basal cells and base of third posterior cell, with slightly darker spot-like infuscations; veins dark reddish brown, the bases of first and fifth veins more yellowish; discoidal cell long, narrowish, truncate apically; middle cross vein a little before middle of discoidal cell; second posterior cell long, narrow, almost parallel-sided; axillary lobe narrow, long; halteres dark brownish, posterior upper parts of knobs slightly more yellowish. *Head* with the interocular space on vertex in ♀ about $2\frac{2}{3}$ times as wide as ocellar tubercle; face rather conically

pointed; proboscis projecting slightly beyond buccal cavity; antennal joint 3 elongate-conical, gradually tapering apically, its style stoutish, a little less than or about $\frac{1}{4}$ length of the joint. *Legs* stoutish; middle and hind femora with a double row of spines below; front tibiae without spicules; modified front tarsi stoutish, fairly densely hairy, its claws much reduced.

From a ♀-specimen in the Museu Dr. Alvaro de Castro.

Length of body: about 11 mm.

Length of wing: about 14 mm.

Locality: Portuguese East Africa.

From *luteicosta* it may at once be distinguished by the relatively narrower wings which are much more darkly and more uniformly tinted and of which the anterior costal part is less contrastingly darker than hinder part, the narrower discoidal and second posterior cells, much broader transverse band of slightly more creamy yellowish scales across base of tergite 3, entirely dark or black scaling on posterior part of venter, and longer style.

Exoprosopa ferreirae Hesse

(Hesse, p. 31, *Mem. do Museu Dr. Alvaro de Castro*, No. 1, 1950.)

At the time I described this species I only had three ♀-specimens to serve as a basis for description. Since then some other specimens, including the still undescribed ♂, have been submitted for identification. The species is characterized as follows:

Body mainly black; buccal rims yellowish; postalar calli and greater part of scutellum reddish brownish; abdomen without any red on sides in both sexes; legs black, but very dark piceous reddish when denuded, especially tibiae; antennal joints 3 tinted dark reddish brown, the style paler. *Vestiture* with the hair on head in front black, that on lower sides of face gleaming sericeous yellowish to pale golden; hair in collar above, upper part of mesopleural and metapleural tufts yellowish; hair on rest of pleurae and a patch of fairly dense hair-like scaling on sternopleuron, tuft on sides of tergite 1 and at base laterally of 2 and hairs on sternites 1-4 as well as most of bristly hairs on coxae white or whitish; fine hairs on disc of thorax, longer ones across hinder part of collar, bristly hairs on hinder part of humeral tubercle and sides of thorax, bristles on thorax and scutellum, bristly hairs on anterior lower part of mesopleuron, a few below wing-bases behind mesopleural tuft, sometimes a few intermixed ones in metapleural tuft, some intermixed on coxae, fairly dense hairs on sides of abdomen and across hind margin of tergite 7 and on posterior part of venter and across last sternite black; numerous intermixed hairs on sides of abdomen and also in posterior part of venter sometimes tinted yellowish or reddish golden; scaling on head in front gleaming brassy yellowish, becoming more brilliant and silvery on sides of face, silvery whitish behind eyes; fine scaling on disc of thorax yellowish, but with streaks of fine dark ones; streak on sides of thorax

also yellowish; scaling across hind margin of scutellum pale yellowish to yellowish white, black across base; scaling on abdomen above white, pale creamy yellowish and black, the pale ones arranged in transverse bands across bases of tergites 2-4 (tergite 3 in ♂ with only a whitish spot-like patch on each side) and across 6 and 7, not or scarcely across base of 5 (a faint yellowish patch on sides of 5 in ♂), broadly on sides where they are also denser and snow-white, the greater discal parts of the bands across 2-4 being creamy yellowish to yellowish, but snow-white across 6 and 7; rest of abdomen above with dark or black scaling; scales on coxae and sternites 1-4 longish, conspicuously snow-white; those on venter posteriorly shorter, smaller and dark or black; scaling on legs dark, gleaming like anthracite. *Wings* rather elongate, markedly narrow, distinctly tinged smoky brownish throughout, especially in ♀, the basal and costal part, including first basal cell, greater part of marginal cell, basal parts of first posterior and enclosed submarginal cells obliquely up to end of first vein much darker blackish brown; all cross veins with distinct darker spot-like infuscations, those at bases of fourth and third posterior cells and on middle cross vein larger, more distinct; a faint, though distinct, infuscation also on lower vein of discoidal cell near base of second posterior cell; alulae and squamae yellowish; veins dark blackish brown, the third and fifth more yellowish; discoidal cell elongate broader apically than basally, subacute (or sometimes almost subtruncate) apically, its apical vein feebly sinuous and oblique to hind margin, the cell thus not so straightly truncate apically as in other members of this section, with the upper vein of the discoidal cell apically slightly curved anteriorly; middle cross vein a little before or a little beyond middle of discoidal cell; first posterior cell narrowed apically; second posterior cell rather longish, narrow, sub-parallel-sided; axillary lobe narrow, gradually curved posteriorly; halteres dark blackish brown, their knobs slightly paler above apically. *Head* with the interocular space on vertex in ♀ about or almost thrice as wide as ocellar tubercle, in ♂ about twice as wide as distance between outer margins of hind ocelli; third antennal joint elongate-conical, gradually tapering, longer than joints 1 and 2 combined, its style stoutish, between $\frac{1}{4}$ and $\frac{1}{6}$ length of joint 3. *Legs* without spicules on front tibiae; middle and hind femora with a double row of spines; hind tibiae with longish scales and well-developed spicules and spurs; front tarsi longer in ♂ than in ♀, shortly and densely hairy in both sexes.

In the Durban Museum, Museu Dr. Alvaro de Castro and South African Museum (original ♀-type in the Museu Dr. Alvaro de Castro and the ♂-type in the South African Museum).

Length of body: about 10-15 mm.

Length of wing: about 11-16 $\frac{1}{2}$ mm.

Locality: Portuguese East Africa: Maputo (Porto Henrique) (M. C. da Veiga Ferreira, 27 Dec. 1949) (original ♀-type). Maputo (Travassos Dias, 21 April 1952) (♂-type). Zululand: Manguzi River near Maputo (Bell-Marley, Nov.-Dec. 1945.)

This species which is easily recognized by its narrowish and darkened wings is slightly variable. Some specimens have yellowish hairs intermixed on sides of abdomen and others again have no black bristles in metapleural tuft. From *luteicosta* it may at once be distinguished by its markedly narrow wings which are distinctly smoky throughout and with a darker anterior infuscation, its less truncate discoidal cell, narrower and longer second posterior cell, narrower axillary lobe, narrower and more yellowish band across discal part of base of tergite 2, more yellowish scales across base of tergite 4, much dark scaling on venter posteriorly and relatively longer style. From *spectrum* Speis., described from Kilimandjaro, which it apparently resembles more closely, it differs according to Bezzi's definition of Speiser's species in not having the entire second basal cell infuscated, in having distinct spot-like infuscations on cross veins and no spicules on front tibiae. From *busiris* Jaen., as defined by Bezzi, it appears to differ in the predominantly pale or whitish hair on the pleurae.

Exoprosopa luteicincta-section

This section really constitutes an adjunct to the *luteicosta*-section, its representatives differing from the latter series in the following respects:

Abdomen either with the broadish transverse bands of pale scaling predominantly yellow or ochreous yellowish, those across base of tergite 2 and across 6 and 7 being scarcely more whitish, or the abdomen with most of the bands creamy yellowish or greyish yellowish and body below with very conspicuous and contrasting snow-white hairs and brilliantly silvery scales on sides of face; sternopleuron as in most of the *luteicosta*-section also with a patch of dense snow-white scales; wings with the anterior infuscation less intense and less well marked off, without any spot-like infuscations on cross veins in clearer part or with much fainter and indistinct ones at bases of third and fourth posterior cells, without any trace of fuscous borders along veins; discoidal cell usually narrower and not broadened apically to the same extent, its apex usually being more acute.

Exoprosopa luteicincta n. sp.

Body mainly black; face (excepting a dark discal spot), antennae, especially joint 3, postalar calli, hinder two-thirds of scutellum, very narrow hind margins of tergites, especially posteriorly, broad basal half of venter, hind margins of rest of sternites and legs yellowish or luteous. *Vestiture* with the hairs on head in front black, yellowish on extreme sides of face and the scaling gleaming pale brassy yellowish, more silvery on sides of face and silvery behind eyes; collar above, hairs on humeral tubercle and on pleurae yellowish, slightly paler below and a small patch on sternopleuron more distinctly white, even more so than on coxae; hairs on sides of tergite 1 and basally of 2 straw-coloured whitish; rest of hairs on sides of abdomen rather sparse, black; fine hairs on thorax, a few bristly hairs on notopleural part, prealar, postalar and scutellar bristles,

fine hairs on abdomen above and some coxal bristles black; hairs on venter gleaming sericeous whitish or yellowish, with some dark ones posteriorly, the scaling gleaming whitish; scaling on legs mainly yellowish; that on thorax above mainly yellowish; scaling on abdomen above pale yellowish and black, the yellowish ones arranged as broadish uninterrupted bands across bases of tergites 2-4 and across 6 and 7, that across base of 2 slightly more whitish and broader on sides and that across 4 almost occupying entire segment like 6 and 7, with a few pale scales on sides of 5. *Wings* distinctly tinged greyish yellowish, the base and costal part up to proximal half of fourth vein and apically to end of first vein reddish brownish, the infused part not demarcated, but imperceptibly merging into clearer greyish parts, the second basal cell not included in the darker part but greyish like rest of wing; spot-like infuscations on cross veins very faint; second vein with a very shallow dip apically; discoidal cell subtruncate apically; middle cross vein slightly beyond middle of discoidal cell; first posterior cell broadly open apically; sides of second posterior cell feebly sinuous; third posterior cell much shorter than fourth and apically only a little broader than second; halteres with yellowish knobs. *Head* with the face rather shortish; antennal joint 3 elongate-conical, longer than joints 1 and 2 combined, its style stoutish, quite or a little less than a third length of joint, distinctly longer than joint 2. *Legs* with only a few spines on middle and hind femora and spicules and scales in outer upper row on hind tibiae not denser or more numerous or longer than the rest; front tibiae non-spiculate; basal tooth of claws rather small.

From 2 ♂♂ in the South African Museum.

Length of body: about 10-10½ mm.

Length of wing: about 10½-11 mm.

Locality: Portuguese East Africa: Masiene (Lawrence, Dec. 1923).

Easily recognized by the yellowish bands across abdomen, greyish yellowish tinged wings and yellowish legs. Differs from smallish specimens of *luteicosta* in the relatively shorter wings which are more yellowish greyish, with fainter spots, more subacute discoidal cell, longer style, yellowish bands on abdomen, yellowish legs, etc.

Exoprosopa luteocera n. sp.

A species with almost entirely hyaline wings and representing a transitional stage between the *luteicosta*-series and the entirely clear-winged series. It is characterized as follows:

Body mainly black; extreme buccal margin of face and third antennal joints luteous; postalar calli, apical two-thirds or more of scutellum and obscure narrow hind margins of sternites in ♀ at least reddish; legs dark or black, the femora, however, with much white scaling. *Vestiture* with the hairs on head in front mainly black, sericeous or whitish on sides of face and with very pale brilliantly shining brassy scales, very brilliantly silvery white on sides of face

and behind eyes; thorax with whitish hair in collar above, white hairs and scaling on pleurae, a patch of dense white scales on sternopleuron and coxae, the fine hairs and bristles above black, with mostly yellowish or pale ochreous yellowish scaling discally and on scutellum, but with black ones indicated in streaks; base of scutellum with dark gleaming scales and disc with brilliantly shining ones which appear dark in certain lights; abdomen with a white tuft basally on each side and on sides basally of tergite 2, the rest of hairs on sides sparse, shortish and black, with bands of yellowish scales across hind margin of tergite 1, broadly across bases of 2 and 3, across 4, 6 and 7 and on sides of 5, the scales on extreme sides of these bands whitish, with the rest of scaling black, but brilliantly gleaming in certain lights; hairs and scaling on venter white, excepting the black hairs on last sternite; some bristly hairs on coxae black. *Wings* greyish hyaline, the base, costal cell, first basal cell and upper part of marginal cell up to level of end of false vein yellowish; first, third and fifth veins also yellowish; spots not distinct, only represented by slightly darker cross veins at bases of enclosed submarginal, first posterior and fourth posterior cells; first posterior cell much narrowed and acuminate apically, almost closed apically; discoidal cell subacute apically, its apical vein less perpendicular than in *luteicosta*; middle cross vein much before middle of discoidal cell; squamae yellowish white, very pale-fringed; halteres and their knobs dark brownish. *Antennae* with joint 3 elongate, much longer than 1 and 2 combined, its style yellowish, stout, very short, about as long as antennal joint 2. *Legs* with relatively few spines on middle and hind femora; front tibiae unfortunately missing in the two specimens, but will probably prove to be non-spiculate in this species.

From 2 ♀♀ (type in the South African Museum, paratype in the Rhodesian Museum).

Length of body: about 11–12 mm.

Length of wing: about 10–10½ mm.

Locality: East Transvaal: Newton near Komatipoort (Fenoulhet, April 1912) (type). Northern Rhodesia: Victoria Falls (Mus. Rhod., Dec. 1938).

Exoprosopa zambesiana n. sp.

Agrees with *luteocera* in most of its characters, but differs in the following respects:

Antennal joints black, not luteous; frons anteriorly with some black scaling in the form of an inverted V; collar above and humeral tuft slightly more yellowish; bands of pale scaling across abdomen above much narrower, more whitish on sides and across 7, very narrow discally across tergites 3, 4 and 6 and wanting on 5, the black scaling on abdomen thus more extensive; hairs on sides of abdomen denser, longer; sternite 5 with distinctly more dark scales or entirely dark-scaled; wings also greyish hyaline, the anterior part slightly darker, this infusion also slightly more extensive, the bases of enclosed submarginal and first posterior cells also slightly tinged; spots on cross veins in

basal half more distinct; first posterior cell broadly open, not acuminate apically; discoidal cell distinctly more truncate apically; and legs mainly dark-scaled.

From a ♀ in the Rhodesian Museum.

Length of body: about $9\frac{1}{2}$ mm.

Length of wing: about 10 mm.

Locality: Northern Rhodesia: Victoria Falls (Nat. Mus. S. Rhod., Dec. 1938).

Exoprosopa villaeformis-section

This and the following two sections are characterized by representatives of *Exoprosopa* which have entirely clear, hyaline or faintly greyish hyaline wings or at most only the extreme base and costal cell are tinged or infuscated to a variable extent; second basal and discoidal cells and bases of enclosed submarginal and first posterior cells entirely hyaline; spot-like infuscations absent or only feebly indicated on middle cross vein and base of second vein. This special section may be recognized as follows:

Antennal joint 3 shortly conical, bulb- or onion-shaped, its base broadly dilated bulb-like and its style very long and slender, at least as long as or longer than joint itself; interocular space on vertex narrow, in known ♂♂ scarcely or only a little wider than ocellar tubercle and in ♀♀ usually less than 3 times width of tubercle; sternopleuron and lower part of mesopleuron with a patch of dense and conspicuous white scales.

Exoprosopa villaeformis Bezz.

(Bezzi, p. 650, *Trans. Ent. Soc. Lond.*, 1911 (1912); Bezzi, pp. 283 and 329, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Syn. = *stannusi* Bezzi, in part, p. 170, *Ann. S. Afr. Mus.*, xviii, 1921.)

The specimens in the collections before me agree in most respects with *villaeformis* which Bezzi described from Nyasaland. One ♀-specimen from South-West Africa was, however, wrongly identified by Bezzi (loc. cit.) as *stannusi*, a species which differs from *villaeformis* in so many respects that it is difficult to explain how Bezzi could have confused the two species. The species *villaeformis* is characterized as follows:

Body black; greater part of frons, excepting the dark vertex, antennal joints 1 and 2, entire face to a variable extent, lower part or lower half of head below and palps yellowish, the basal half of frons and face above tending to be more orange and the buccal part or even palps distinctly more whitish; sides of thorax above to a variable extent, postalar calli, greater part of scutellum, sides of tergites 2-4 very broadly and extreme sides of all other tergites, hind margins of tergites, more broadly posteriorly, mesopleural and propleural bosses to a

variable extent or sometimes much of pleurae and entire or greater part of venter, excepting only a dark medial part on sternite 5 or sometimes also 6, yellowish, yellowish red or reddish; legs yellowish, but with the inner apical part of front femora, the anterior or outer apical parts or halves or even entire outer faces of middle and hind femora and corresponding surfaces of tibiae covered with dark or black scaling, and the tarsi dark. *Vestiture* with the shortish and dense hairs on frons, hairs on antennae and sparse and short ones on discal part of face black, the longer ones on sides of face gleaming and more whitish; scaling on head in front whitish, gleaming purer whitish or silvery on sides of face, that behind eyes broadly silvery white; thorax with the collar above yellowish, the fine hairs discally above composed of yellowish and intermixed dark ones, gleaming yellowish to golden in certain lights; streak on sides white, with all the rather dense hairs on pleurae, including metapleurae, and most of those on coxae white or snow-white; dense scales on sternopleuron and on coxae also white; a few prealar bristles, postalar and scutellar bristles black; scaling on disc of thorax mostly dark in ♂ and in streaks of yellowish whitish and dark ones in ♀; scutellum with gleaming cream-coloured scales, purer white posteriorly; abdomen with dense white hairs on sides of tergite 1, greater part of sides of 2 and sides of 3 and 4 basally, with black hairs on rest of sides, the black tuft on sides apically of 2 being conspicuous, the hairs on venter white, black on last sternite in ♀; scaling on abdomen above white, yellowish and black, the white ones arranged across hind margin of tergite 1, as broadish bands across more than basal half of 3, sides of 4 and across 6 and 7, the yellow ones on sides basally of 2 in ♀ and across base discally of 4 in both sexes, and black ones mostly discally on 2 and broadly across hind margins of 2-4 and across entire 5; scaling on venter white, black only on a medial patch on sternite 5 and sometimes to a lesser extent also on 6 or even sides of 5; scaling on legs whitish basally and yellowish whitish to pale yellowish on parts not covered by black scaling. *Wings* predominantly hyaline, only the base up to basal cross vein in costal cell in ♂ yellowish brownish, rest of costal cell in ♂ more subopaquely whitish, with the base and entire costal cell in ♀ and also base of first basal cell and to a much feebler extent upper part of marginal cell darker, sometimes more distinctly brownish; veins yellowish brownish, more yellowish in ♂; first posterior cell usually broadly open apically; discoidal cell acute apically, much like that of *stannusi*, but its upper vein straighter, its apical vein parallel or sub-parallel to hind margin, slightly sinuous; middle cross vein a little before middle of discoidal cell; axillary lobe more rounded in ♂ than in ♀; basal comb well developed, pale-scaled; squamae yellowish, yellowish-fringed in ♂ and some ♀♀, white-fringed in other ♀♀ or even dark in ♀♀ from South-West Africa; halteres yellowish, their knobs almost white. *Head* with the interocular space on vertex in ♂ very narrow, only a little wider than narrowish ocellar tubercle, in ♀ also relatively narrow, but broader than in ♂; inter-antennal space markedly broad, relatively broader than in most species; face rather shortish, obtusely blunt apically; antennal joint 3 shortish, more bulb-

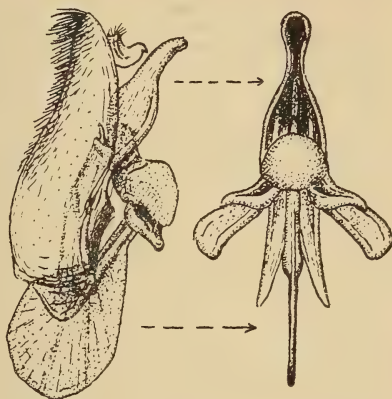
or onion-shaped than in most other species, shorter than joints 1 and 2 combined, its style very long, as long as the joint or even longer. *Legs* with numerous shortish spines, more or less in two rows on middle and hind femora below; front tibiae non-spiculate; hind tibiae with dense spicules in outer upper row. *Hypopygium* of ♂ (text-fig. 271) with the apical angles of basal parts fairly prominent; aedeagal process shaped as shown in figures, slightly broadened and hollowed apically below.

In the British, Rhodesian, Transvaal and South African Museums.

Length of body: about 13–16 mm.

Length of wing: about 13–16 mm.

Locality: Zululand, Southern Rhodesia, South-West Africa, Nyasaland and according to Bezzi also in Kenya, Belgian Congo and North Nigeria.



TEXT-FIG. 271. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa villaeformis* Bezzi.

Exoprosopa bolbocera n. sp.

Another peculiar species belonging to the *Exoprosopa villaeformis*-section which is characterized by a *Villa*-like shape of the body and bulb- or onion-shaped third antennal joints. It is characterized as follows:

Body mainly black; sides of face, more broadly in ♀, and part of buccal cavity below eyes orange yellowish; lower sides of face and buccal rim opposite them more yellowish white; palps yellowish; posterior calli, greater part of scutellum reddish brown; spots on sides of tergites 2 and 3 basally reddish in both sexes; venter in both sexes mainly reddish; legs with the femora, especially middle and hind ones, yellowish on their inner and lower surfaces, the apices of femora and entire tibiae and tarsi darker or even black. *Vestiture* with the hairs on head short and dense, denser on middle part of frons, shorter, sparser and depressed on face discally, black, but sericeous whitish or yellowish on sides of face; scaling on anterior half of frons and face discally gleaming pale brassy to silvery in different lights, that on sides of face more distinctly silvery whitish, that behind eyes mostly black and gleaming, with whitish ones across hinder half; hairs in collar above and in upper anterior part of mesopleural tuft yellowish; propleural tuft and prosternal hairs more whitish; those on rest of pleurae, in metapleural tuft, sides of tergite 1, disc of same tergite, sides of 2 basally, sides of 3 basally and on venter snow-white; fine hairs on thorax above, prealar, postalar and scutellar bristles, hairs on rest of sides of abdomen, finer ones on abdomen above, longer ones posteriorly and hairs on last sternite black; scaling on thorax above in form of streaks of yellowish ones discally, basally and across behind collar

and black ones on rest of surface; streak on each side pale yellowish whitish; scaling on scutellum black across base, otherwise yellowish; scaling on pleurae very dense, on sternopleuron and mesopleuron and conspicuously snow-white like the very dense tuft of hair-like ones on hinder part of mesopleuron; scaling on coxae and a small patch below hind spiracle also dense and snow-white; scaling on abdomen above white, slightly yellowish and black, the pale ones arranged across hind margin of tergite 1, on sides basally of 2, as a broadish band (narrowed discally) across 3, across 4 (only on extreme sides in ♂ and interrupted discally in ♀) and across 6 and 7, with those discally in these bands more yellowish; rest of abdomen above and also across hind margins of tergites black; scaling on venter dense, snow-white, except for a narrow band of dark ones across base of sternite 5; scaling on legs pale yellowish whitish to white on outer and basal parts of front femora and on inner and lower surfaces of the others, black on rest of surfaces and on the tibiae. *Wings* mainly glassy hyaline, only the base, costal cell, extreme base of second basal cell, entire first basal cell and basal half of marginal cell and extreme bases of enclosed submarginal and first posterior cells infuscated blackish brown in ♀; this infuscation in ♂ slightly less extensive, the greater part of marginal cell and bases of first posterior and submarginal cells being clear; spot-like infuscations present on middle cross vein, at base of discoidal cell and at base of fourth posterior cell in both sexes; discoidal cell broader apically than basally, subacute, its apical vein oblique, slightly S-curved, its lower vein bent outwards in third posterior cell; middle cross vein a little before middle of discoidal cell; first posterior cell broadly open apically; basal comb well developed and basal hook also strong; squamae yellowish, with a yellowish fringe; halteres yellowish, their knobs whitish. *Head* with the interocular space in ♂ narrow on vertex, only about $1\frac{1}{2}$ times width of ocellar tubercle, a little more than twice width of tubercle in ♀; frons with a slight foveate depression in the middle; face broadish, bluntly conical; antennal joint 3 shortly conical, broadly dilated basally, bulb- or onion-shaped, its style long and slender, as long as joint in ♂, longer than joint in ♀, the minute spine-like stylet at its apex bent backwards; proboscis covered with minute spinelets; palps quite half as long as proboscis. *Legs* with 2-4 spines on lower anterior aspect and about 2 on outer apical part of middle femora; hind ones with a row of 6 or 7 spines on outer lower part and a row of much shorter ones on inner part below; front tibiae non-spiculate; front tarsi shortly hairy; basal tooth of claws very small.

From a ♂ and a ♀ (holotype in the South African Museum and allotype in the Durban Museum).

Length of body: about $11-11\frac{1}{2}$ mm.

Length of wing: about $10\frac{1}{2}-11$ mm.

Locality: Zululand: Manguzi River near Maputo (Bell-Marley, Nov.-Dec. 1945).

Differs from *villaeformis* in having the anterior part of wings darker and even in ♂ more extensively infuscated; a black frons; less red on sides of

abdomen; more extensively darkened femora and tibiae; smaller basal tooth of claws, etc.

Exoprosopa marleyi n. sp.

This very large clear-winged species which shows affinities with *villaeformis* has certain characters which distinguish it from all large-sized South African species of *Exoprosopa*. It is characterized as follows:

Body mainly black; anterior half of frons, greater part of face, excepting a brownish infusion across basal half, buccal rim below head and a line behind eye-margins (broadened in the middle) yellowish, the latter tending to be more orange yellowish; postalar calli, greater part of scutellum, hind margins of tergites and obscure hind margins of sternites reddish or ferruginous reddish; legs reddish brown, the tarsi appearing darker apically. *Vestiture* with the hairs on frons, antennae and face predominantly pale sericeous yellowish, those on sides of face more whitish, with some intermixed dark ones on sides of frons in basal half and a streak of dark ones down middle from front part of frons to apex of face; scaling on head in front pale yellowish white, entirely white on sides of face and behind eyes; hairs in collar above and on thorax anteriorly, anterior part of mesopleural tuft and metapleural tuft golden yellowish; plumula and tuft on each side at base of abdomen orange yellowish; the few short and stoutish prealar bristles dark reddish brown, the postalar ones yellowish or reddish golden and scutellar bristles dark reddish brownish, but yellowish-tipped; hairs on disc of thorax and on pleurae and hair-like scales on pleurae white, the dense tuft of hair-like scales in front just above wing-bases and also on coxae conspicuously snow-whitish; scaling on thorax above mostly yellowish whitish, more yellowish at base, more whitish on sides; hairs on sides of abdomen on tergites 2-6 not very long, sericeous whitish; those above, some intermixed on sides of tergite 6, dense ones across hind margin of last tergite black; hairs on venter whitish, but denser and black across last sternite; scaling on abdomen above mostly dark or black, the hair-like ones on sides of tergite 2 whitish and with dense, white, lanceolate scales in distinct narrow bands (broader on sides) across hind margins of 2-6 and black ones across hind margin of last tergite; venter also with bands of dense white scaling across hind margins of sternites, with smaller pale ones and dark ones to a variable extent across bases of sternites and entirely dark ones on last sternite; scaling on legs dark or brownish, gleaming greyish to pale in certain lights. *Wings* strongly developed, pointed apically, glassy or vitreous hyaline, shining iridescent, with the base up to cross vein in costal cell and bases of basal cells dark blackish brown and the costal cell subopaquely pale yellowish whitish, without any spots on cross veins; veins yellowish; basal comb strongly developed, dark-scaled, but with a patch of yellowish whitish scales at its base and also a small patch of long white ones at base of wing; first posterior cell broadly open apically; submarginal cross vein slightly sinuous; discoidal cell narrowed apically, shaped like that of *villaeformis*, its apical vein slightly S-curved, subparallel to hind margin; middle

cross vein at about middle of discoidal cell; second vein not deeply bent inwards apically; axillary lobe very large, very broad near base and sharply rounded there, nearly twice width of anal cell; squamae brownish, orange-fringed; halteres yellowish brownish, their knobs dark brown above basally, pale along border. *Head* with the frontal depression slightly transversely foveate; face rather broad, bluntly conical; antennae rather wide apart, joint 3 shortly conical, broadened basally, subequal in length or slightly shorter than joints 1 and 2 combined, its style slender, long, longer than joint 3, slightly broadened apically; proboscis stout, confined to buccal cavity. *Legs* with numerous shortish spines on middle and hind femora, two rows on latter (front legs in specimen missing); tibiae with relatively short spicules, those on outer aspect of hind ones much denser, with the crown of apical spines relatively short and numerous; basal tooth of claws well developed.

From a ♀ in the South African Museum.

Length of body: about $17\frac{1}{2}$ mm.

Length of wing: about 22 mm.

Locality: South-West Africa: Kaam River, Rehoboth (Bell-Marley, 27 Dec. 1939).

From *villaeformis* it may at once be distinguished by its much larger size, slightly clearer costal cell, relatively broader axillary lobe, predominantly pale hairs on head in front, orange yellowish plumula and tuft at base of abdomen, absence of a broad white band across tergite 3, relatively broader interocular space, etc.

The clear wings with their basal infuscation is reminiscent of the wings of the *Bombylius analis*-group.

Exoprosopa pallidifacies n. sp.

A species agreeing with *villaeformis* in the very pale yellowish face and legs, bulb-shaped third antennal joint and long style, but differing from it in many other respects. It is characterized as follows:

Body black; face (excepting the black medial basal part), palps, head medially below and sometimes a narrow line behind eyes in lower part pale yellowish whitish, the buccal part or part below eyes more whitish; postalar calli, hinder part or half of scutellum, a spot on sides of tergite 2 in basal half, sides of 3 and extreme sides of 4 to a variable extent, hind margins of tergites 3-7, base of venter and broad hind margins of posterior sternites reddish or yellowish red; legs very pale yellowish or luteous, the inner apical parts of front femora, outer apical parts of middle and hind femora and the apices of tibiae dark or black-scaled, the tarsi darkened. *Vestiture* with the hairs on frons and antennae black, that on face white on sides, sparse, short and black medially and discally on dark part; scaling on head in front gleaming snow-whitish, that behind eyes silvery white; thorax with hairs in collar above, upper anterior part of mesopleural tuft and upper part of metapleural tuft yellowish, the rest of hairs on

pleurae snow-white; a patch of dense and conspicuous scales on sternopleuron and coxae snow-white; postalar and scutellar bristles and only one or two prealar ones black; fine, sparse hairs on disc of thorax dark; scaling on thorax yellowish, but with black ones discally and also across base of scutellum; abdomen with the hairs on tergite 1, on sides of tergites 1-4 entirely whitish, those on rest of sides sparse and black; hairs on venter whitish; scaling on abdomen above yellowish and black, the former in bands densely across hind margin of tergite 1, broadly across basal half of 2, broadly on sides of 3 and also to a variable extent across base of 3, across 4 and 6 and 7, the conspicuous black ones across apical half of 2, across hinder half of 3, across entire 5; scaling on venter entirely white and parts of legs not covered with black scales also with whitish ones. *Wings* hyaline, the base, costal cell and to a certain extent also base of first basal cell and along upper part of marginal cell subopaquely yellowish; spots wanting; discoidal cell acute apically; middle cross vein much before middle of discoidal cell; first posterior cell broadly open apically; halteres yellowish. *Head* with the interocular space on the vertex in ♀ comparatively narrow like that of *villaeformis*; antennal joint 3 bulb-shaped, not much longer than 1 and 2 combined, its style very long, slender, as long as or scarcely shorter than joint itself. *Scutellum* more angularly pointed apically than in other species. *Legs* with relatively few spines on middle and hind femora; front tibiae non-spiculate and spicules on outer aspect of hind ones not longer or denser than shortish ones in rest of rows.

From 2 ♀♀ (type in the South African Museum and paratype in the Commonwealth Institute).

Length of body: about 8 mm.

Length of wing: about 8 mm.

Locality: Southern Rhodesia: Bulawayo (2 Dec. 1922) (type); Matopos (7 Nov. 1920).

Exoprosopa claripennis n. sp.

A somewhat denuded ♀, and another pale ♀ which appears to be a teneral specimen, in the collections before me, show certain distinctive characters which at once distinguish them from most other species of *Exoprosopa*. In the shape of the third antennal joint, the long style, narrow interocular space and almost entirely hyaline wings they agree with members of the *villaeformis*-section, but in other characters they differ entirely. They are characterized as follows:

Body, including scutellum, mainly black, only the narrow hind margins of posterior tergites obscurely reddish; buccal rim yellowish; legs brownish to dark brown, dark or black-scaled. *Vestiture* with the hairs on head in front black, the scaling gleaming greyish yellowish, but dark in certain lights, more silvery on sides of face; hairs in collar above, sides of thorax above, mesopleural tuft and metapleural tuft pale sericeous yellowish to yellowish white, the lower parts of mesopleural tuft and metapleural tuft more whitish; plumula and tuft

at base of abdomen also more whitish; some fine hairs on disc of thorax, prealar, postalar and scutellar bristles, hairs on sides of abdomen, some coxal bristles and hairs on last sternite black; scaling on thorax above evidently dark discally, but gleaming pale, distinctly yellowish on sides and across base; sternopleuron with a patch of dense white scales; abdomen above (where not denuded in specimens) with extensive, flattened, dark or black, gleaming scales, with pale or whitish ones confined as a transverse band across base of tergite 2 and to a lesser and sparser extent across sides of 3, 4 and 6 and 7, those across hind margin of 7 black; hairs on venter mostly pale, the scaling mostly dark, but with some pale ones on sides. *Wings* distinctly narrowed basally, the axillary lobe narrow, only about as broad as anal cell and the alula much reduced, giving the wings the appearance of being stalked, mostly clear hyaline, only the base, costal cell and to a slightly lesser extent first basal cell yellowish; spot-like infuscations on middle cross vein and base of fourth posterior cell feeble, scarcely indicated; discoidal cell subacute apically; middle cross vein slightly before middle of discoidal cell; second posterior cell as broad as or broader on hind margin than third; third posterior cell very much shorter than fourth; squamae yellowish, white-fringed; halteres with pale yellowish knobs. *Head* with the integument of vertex, frons and face shining; interocular space on vertex narrow, about twice width of ocellar tubercle in ♀; face slightly, though distinctly, depressed above anteriorly; antennal joint 3 shortly conical, broadened basally, bulb-like, its style long, distinctly broadened apically, about as long as or even slightly longer than joint. *Legs* with the front tibiae finely spiculate; first joint of front tarsi thickened, covered with longish bristly hairs; hind femora with only about 2 spines on outer apical aspect, but with a row of fine bristly hairs.

From 2 ♀♀ (type in the South African Museum, paratype in the Rhodesian Museum).

Length of body: about $7-7\frac{1}{2}$ mm.

Length of wing: about $6\frac{1}{2}-8$ mm.

Locality: Southern Rhodesia: Worlds View (Stevenson, 24 April 1925) (type); Saw Mills (Rhod. Mus., 3 April 1926).

Distinguished from the other species in the *villaeformis*-section by its much reduced alula, narrow axillary lobe, finely spiculate front tibiae, more extensive black scaling on body above and shining frons and face.

Exoprosopa inornata-section

This section can be included in Bezzi's *stipida*-group within which he placed all the species with entirely hyaline wings and of relatively small size. For convenience' sake, however, only those representatives of *Exoprosopa* which differ from the *villaeformis*-section in having the third antennal joint elongate-conical, a much shorter style (much shorter than third joint), a broader interocular space (wider than ocellar tubercle in ♂♂ and at least 3 times tubercle

in ♀♀), and no patch of dense white scales on sternopleuron are placed in this section. From this section are also excluded all those smallish clear-winged species which have conspicuous and brilliantly metallic or opalescent scales on body, reduced or feeble thoracic and scutellar bristles, reduced style and feeble development of spines on legs.

Exoprosopa inornata Lw.

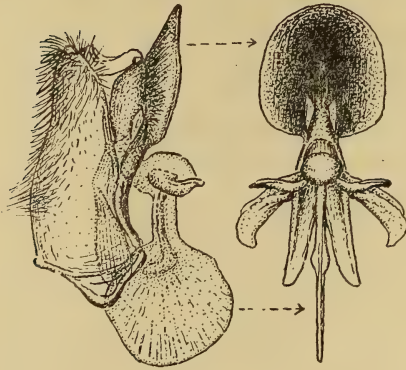
(Loew, p. 240, *Dipt. Faun. Südaf.*, i, 1860.)

I refer several ♂♂ and ♀♀ in the collections before me to *inornata* which Loew described from a single ♀ in 1860. This species is characterized as follows:

Body black; entire face, especially in ♀, or sometimes greater part of face (excepting a dark discal basal patch of variable extent in both sexes or more especially in ♂), antennal joints 1 and 2 (sometimes also 3), postalar calli, apical half or two-thirds of scutellum, sides of tergites 2-4 very broadly, less so in ♀, narrow hind margins of tergites 3-7 to a variable extent and broadish hind margins of sternites or often greater part of venter, especially in ♂, yellowish, luteous, pale yellowish red or reddish; legs mostly luteous or yellowish, the basal halves or two-thirds of front femora and apical parts of tarsi dark to a variable extent, the outer apical halves or parts of middle and hind femora and outer parts of their tibiae dark-scaled, the rest of scaling on legs pale, yellowish or whitish. *Vestiture* with the hairs on head in front entirely black, the scaling yellowish, slightly more whitish on sides of face, white behind eye-margin; hairs in collar above, notopleural part, mesopleural tuft and on pleurae yellowish to straw-coloured yellowish; metapleural tuft white; some hairs intermixed in propleural tuft, some on coxae, prealar, postalar and scutellar bristles, fine hairs discally above on thorax, hairs on sides of abdomen from apex of tergite 4 and those on last sternite black; dense hairs on sides of tergites 1-3 and base of 4 white; those on venter whitish or sericeous whitish; scaling on thorax above mainly pale yellowish, more whitish in streak on each side; sternopleuron without a patch of dense white scaling; scaling on abdomen above dense and white on broad reddish-coloured sides of tergites 2-4 and across 6 and 7, more yellowish ones in bands across base and middle of 2 and across 3 and 4 in ♀ at least, these bands in ♂ sparser and more whitish; scaling across hind margin of tergite 1 also pale; that on rest of discal surface of tergites (not occupied by white or yellowish scales) dark or black, tergite 5 being entirely or almost entirely dark-scaled; scaling on venter white. *Wings* entirely glassy or vitreous hyaline, only the base, base of costal cell to a variable extent and base of first basal cell more subopaquely pale yellowish or yellowish whitish; veins yellowish and without any indications of spots; first posterior cell broadly open apically and there much narrower than second; discoidal cell acute apically, its apical vein substraight or feebly sinuous, parallel or subparallel to hind margin; middle cross vein a little before middle of discoidal cell; basal comb

small, yellowish-scaled above; squamae translucent whitish, white-fringed; halteres yellowish, their knobs whitish. *Head* with a fairly conspicuous small frontal depression; antennal joint 3 not shorter than, but usually a little longer than joints 1 and 2 combined, conical, its style conspicuous, varying in length

from a fourth to about half length of joint, always much longer than antennal joint 2. *Legs* without spicules on front tibiae; front tarsi densely hairy; middle and hind femora with spines below. *Hypopygium* of ♂ (text-fig. 272) with the ventral aedeagal process broad, cowl or hood-shaped; aedeagus fairly long and slender; basal strut racket-shaped.



TEXT-FIG. 272. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa inornata* Lw.

In the Commonwealth Institute, Rhodesian and South African Museums.

Length of body: about 8–10½ mm.

Length of wing: about 7½–9½ mm.

Locality: Various localities, such as Bulawayo, Morari River and Vumbu Mts., in Southern Rhodesia.

Exoprosopa nigrifimbriata n. sp.

Very closely resembles *inornata*, agreeing with it in most respects, but differing in the following respects:

Greater part of face (excepting only yellowish buccal margin and line below each antenna) and antennae, not yellowish but black; hairs on sides of face finer, gleaming yellowish; legs distinctly darker, brownish to dark brownish; venter darker; scaling on thorax above with more dark ones in streaks; abdomen above with distinctly more black scaling, the scales across hind margins of all the tergites from 2–7, especially on last two tergites, dark or black (white on last two tergites in *inornata*), with those across basal parts or halves of 4 and 5 or on sides of 5 at least predominantly pale or with more pale or cream-coloured ones; wings with not only the base but entire costal cell and to a variable extent first basal cell distinctly subopaquely yellowish.

From a ♂ in the South African Museum.

Length of body: about 10 mm.

Length of wing: about 10 mm.

Locality: Southern Rhodesia: Bulawayo (Arnold, Nov. 1922).

Exoprosopa hyaloptera n. sp.

A single ♀-specimen in the collections before me agrees in most respects with the ♀ of *inornata*, but differs in the following respects:

Entire face and antennae as well as entire scutellum black; sides of abdomen without any red or yellowish; venter darker, with narrower yellowish hind margins; legs not luteous or pale yellowish, but more reddish brown; scaling on head in front gleaming more whitish; pale hairs on pleurae with more black ones in propleural part and on mesopleuron; thorax with more dark scaling on disc; abdomen above with more black scaling, with conspicuous black scaling across hind margins of all the tergites from 2 to 7 as in *nigrifimbriata*, with more whitish, and not yellowish, scaling across tergites discally; wings as in *inornata* and not tinged to the same extent as in *nigrifimbriata*; and style of antennal joint 3 about half length of joint.

From a ♀ in the South African Museum.

Length of body: about 8 mm.

Length of wing: about 7 mm.

Locality: Southern Rhodesia: Bulawayo (23 Nov. 1924).

Exoprosopa parvicellula-section

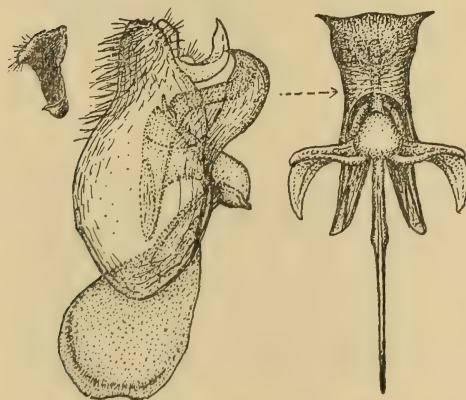
Representatives of *Exoprosopa* which show the following combination of characters and of which two species, *parvicellula* and *chrystallina*, were formerly included by Bezzi in his *stupidus*-group, are referred to this special section. In these species thoracic and scutellar bristles are much reduced; spines on femora absent, feeble or minute; scaling on head in front, behind eyes and either on body above or on parts of body below conspicuously and brilliantly metallic, opalescent, pearly, or greenish, bluish and purplish iridescent; wings very shining and brilliantly iridescent, entirely hyaline or without distinct infuscation even basally and anteriorly in costal part; first posterior cell usually very broadly open; integument of frons shining; and the style of antennal joint 3 minute and spine-like. In most of the above-mentioned characters representatives of this section also differ from members of the preceding two sections.

Exoprosopa iridipennis n. sp.

This small *Villa*-like species is characterized as follows:

Body mainly black; occiput above and frons to a great extent shining; entire sides and apical part of face and antennal joints 1 and 2 and basal half, or to a variable extent base, of 3 yellowish, the buccal rim more pallid or whitish; apical two-thirds or three-quarters of scutellum discally, sides of tergites 2 and 3 and sometimes more obscurely also rest of sides of abdomen in ♂, hind margins of tergites, hind margins of sternites in ♀ and greater part of venter in ♂ reddish brownish; legs yellowish brown to sienna-brownish, the outer apical parts of hind femora sometimes darkened. *Vestiture* with the sparse hairs on head in front black, pale only on extreme sides of face below; scaling on frons and face gleaming silvery whitish, that on sides of face more opalescent or iridescent white, that behind eyes brilliantly silvery and iridescent white; thorax with the

collar above straw-coloured whitish, the rest of hairs on sides and pleurae whitish, the 3 or 4 shortish prealar bristles, shortish postalar and scutellar bristles black; fine, but sparse, hairs on disc dark; scaling on disc above and on scutellum mainly dark, gleaming greyish, those at base and on sides more iridescent; scaling on sternopleuron and coxae whitish opalescent to mother-of-pearl; abdomen with the hairs much reduced and sparse, those on sides, except whitish ones at base, wanting and black ones posteriorly sparse, relatively short, those on venter fine, very short, sparse and pale; scaling on abdomen above composed of white and dark or black bronzy-gleaming ones, the white ones arranged as a narrow basal band across tergite 2, a slightly broader and discally equally broad basal band across 3, across basal half of 4 and across most of 5-7 and especially across hind margins of last three segments, with the black bronzy-gleaming ones on rest of surface above; scaling on venter dense, white; that on legs whitish on front femora and on bases or hinder surfaces of the other femora, the rest of scaling on legs dark and bronzy-gleaming, especially on hind ones. *Wings* broadish, vitreous hyaline, shining, highly iridescent, only the base, costal cell and extreme base of first basal cell yellowish; veins yellowish, without spots on cross veins; first posterior cell very broadly open; discoidal cell relatively short, not dilated apically, subtruncate apically, its apical vein straight or scarcely sinuous, not much inclined to hind margin; middle cross vein before middle of discoidal cell; second posterior cell broad apically, usually broader or much broader on hind margin than third posterior cell, its sides sinuous; third posterior cell much shorter than fourth, not broader apically than across middle; anal cell comparatively broadly or very broadly open; squamae brownish or yellowish brown, pale-fringed; halteres yellowish. *Head* in profile slightly convexly rounded; face rather large, broad, convex; antennal joint 3 conical, longer than joints 1 and 2 combined, its style minute,



TEXT-FIG. 273. Dorsal or apical view of right beaked apical joint, side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa iridipennis* n. sp.

spine-like; interocular space on vertex in ♂ a little less than or about $1\frac{1}{2}$ times width of ocellar tubercle, nearly 3 times width of tubercle in ♀. *Legs* with only about 1 or 2 spines on middle femora and 3 or 4 small ones in apical half of hind ones; front tibiae non-spiculate; basal tooth of claws minute, spine-like. *Hypopygium* of ♂ (text-fig. 273) with the beaked apical joints U-curved and bent upwards as shown in dorsal and side views, their apices not indented as in most other species; ventral aedeagal process shaped as shown in side and ventral views, their

outer apical angles sharp and spine-like, directed dorsalwards and slightly outwards; aedeagus itself small; basal strut ham-shaped.

From 3 ♂♂ and 8 ♀♀ (types in the South African Museum).

Length of body: about $5\frac{1}{2}$ –7 mm.

Length of wing: about $5\frac{1}{2}$ –7 mm.

Locality: Cape Province: Moordenaars Karoo in the Laingsburg Div. (Mus. Exp., March 1937) (types); Murraysburg Dist. in the Great Karoo (Mus. Exp., March 1931). Namaqualand: Lekkersing in the Richtersveld (Mus. Staff, March 1935).

The ♀♀ from the Richtersveld constitute a slight variety which appears to differ from the typical Karoo form in having the anterior part of frons, just behind antennae, arcuately yellowish or with three yellowish spots, dark scaling also on sides of thorax, more dark scaling on tergites 4–7, a darker sternopleural patch, and more dark scaling on venter.

Exoprosopa parvicellula Bezz.

(Bezzi, p. 162, *Ann. S. Afr. Mus.*, xviii, 1921; Hesse, p. 184, *Ann. Transv. Mus.*, xvii, 1936.)

Bezzi based his description of this species on a ♀-specimen in the South African Museum from Inhambane in Portuguese East Africa. He, however, did not sufficiently emphasize certain important characters which are not present in other species placed by him in his *stipida*-group and on which this new section in this revision is based. The species is characterized as follows:

Body mainly black; broadish anterior margin and sides of face, more so in ♂ pale yellowish; postalar calli, hind border of scutellum (if not entirely black) to a variable extent, hind margins of tergites and sternites to a variable extent sienna-brownish to dull reddish brownish, sometimes abdomen and pleurae appear more blackish brown to black; legs dark brown or blackish brown. *Vestiture* with the hairs on frons and short ones on face black; scaling on front half of frons, on face and behind eyes brilliantly metallic shining bluish, greenish and reddish iridescent; hairs in collar above and on pleurae snow-white; a patch of dense snow-whitish scaling on sternopleuron and coxae; some prealar bristles, postalar and scutellar bristles shortish, black; scaling on thorax and scutellum above composed of dark scales which gleam brilliantly reddish metallic or iridescent in certain lights, with two submedial streaks and scaling on sides brilliant greenish blue; scaling on abdomen mainly dark, but gleaming bronzy brownish, those on tergites 6 and 7 also brilliantly metallic shining greenish-blue to violet-reddish, with interrupted (sometimes broadly so) transverse bands of snow-white scales across bases of tergites 2 and 3 and sides of 4 and 6 and across hind margins of last two tergites; hairs on sides of abdomen white on sides of tergite 1, wanting on sides of 2–5 and black across hind margins of 6 and 7; scaling on venter white across sternites 2–4 and in

form of conspicuous bands and dark bronzy-brownish on rest, the hairs on venter very fine, sparse and dark; scaling on legs dark or black, gleaming bronzy-brownish, more whitish on posterior faces of femora. *Wings* very faintly, though distinctly, tinged smoky greyish to yellowish brownish, the base, costal cell and to a variable extent first basal cell more yellowish; veins yellowish to yellowish brownish, the basal cross veins of enclosed submarginal cell and first, third and fourth posterior cells and base of discoidal cell usually appearing darker, due to faint spot-like infuscations; first posterior cell not narrowed apically, very broadly open; discoidal cell acute to subacute apically, its apical vein straight or feebly sinuous; middle cross vein before middle of discoidal cell; sides of second posterior cell sinuous, the cell sometimes as broad apically as third, but sometimes slightly narrower or even broader; third posterior cell shorter than fourth, its base tending to send off a short stump into discoidal cell; anal cell usually broadly open; squamae yellowish to pale yellowish brownish, white-fringed; halteres yellowish. *Head* distinctly transversely depressed just before antennae, the face thus more pyramidally conical, its apex with a tendency to be slightly incised or emarginate; occiput slightly transversely depressed above across postvertical depression; interocular space on vertex broad, appearing narrower in ♀ than in ♂, though its relation to width of ocellar tubercle is a little more in ♀; antennal joint 3 elongate-conical, sharply pointed, much longer than 1 and 2 combined, its style minute, spine-like, scarcely discernible. *Legs* without spicules on front tibiae; front tarsi with only short, not very dense, hairs, its claws in ♂ relatively larger than in ♀; middle and hind femora with few spines below, the hind ones with only 2 or 3 near apex. *Hypopygium* of ♂ very similar to that of *iridipennis* (cf. text-fig. 273), but differs in having the apical margins of basal parts not finely serrulate, the outer apical angles of the aedeagal process less sharply prominent and spine-like, its apical margin also slightly more indented medially; in having broader lateral struts and a much narrower basal strut.

In the British, Transvaal and South African Museums and the Commonwealth Institute.

Length of body: about 7–9 mm.

Length of wing: about 7–9 mm.

Locality: Transvaal, Portuguese East Africa, Southern Rhodesia and Bechuanaland.

A peculiarity of this species is that the ♂♂ are larger and bulkier than the ♀♀ and that the interocular space in the former appears to be wider than in the latter.

Exoprosopa opalina n. sp.

Another species belonging to the *parvicellula*-section, but differing in many respects from the latter species. It is characterized as follows:

Body mainly black; antennal joints 1 and 2, extreme sides anteriorly of frons to a variable extent and sometimes a central spot or streak anteriorly, sides of

face and its anterior margin to a variable extent very pale yellowish, the buccal rim and extreme sides of face usually more ivory yellowish or whitish; postalar calli, disc or greater discal part of scutellum and sometimes sides of tergites 2 and 3 reddish brown to a variable extent, more so in ♂; sides of abdomen in some ♀♀ often entirely black and in some small forms even scutellum may be entirely black; legs with the front femora, outer apical parts or halves of middle and hind ones to a variable extent, outer parts of hind tibiae and tarsi dark blackish brown to black, the bases and extreme apices of front femora and basal halves and posterior surfaces of middle and hind ones and the tibiae yellowish. *Vestiture* with the relatively sparse hairs on head in front and above antennae black, those below antennae and on sides of face gleaming pale sericeous yellowish; scales on head broad and flattened, dense, very brilliantly opalescent or mother-of-pearl, those on entire frons in ♂ forming a very dense and conspicuous patch of brilliant opalescent or pearly shining scales, in ♀ only dense on sides of frons anteriorly, that across base of face in both sexes highly greenish or bluish to pinkish iridescent; scaling behind eyes also brilliantly greenish or bluish iridescent; hairs on thorax and very sparse ones on pleurae, in plumula, on entire sides and apex of abdomen in ♂, sides of tergites 1-3 in ♀ and very sparse hairs on venter snow-white; propleural tuft, however, slightly tinted straw-coloured yellowish to faintly yellowish; two shortish prealar bristles yellowish, though sometimes one of them darkened; postalar and scutellar bristles feeble, hair-like, whitish; hairs on sides of abdomen only dense on tergites 1 and 2, very short and poorly developed on rest of sides, but longer apically, black from sides of tergite 4 and apically in ♀; short depressed hairs on abdomen above discally in ♂ and those on last sternite in ♀ black; a patch of dense scales on sternopleuron brilliantly iridescent, a small patch on lower part of metapleuron and also some on coxae snow-white; scaling on thorax and scutellum above composed mainly of greenish or bluish highly iridescent ones especially on sides and in two submedial streaks, separated by darker ones, the dense hair-like ones on sides white, those across hind margin of scutellum more whitish opalescent; scaling on abdomen above composed of broadish, white, iridescent and dark or bronzy-brownish ones, the white ones arranged transversely on sides of apical part of tergite 1, across base of 2, broader on sides, across base of 3 and sides of 4 and in ♂ very densely on sides of 6 and across 7, less dense on sides of 6 and 7 in ♀, the pearly iridescent ones densely and more extensively across 5-7 in ♀ and only discally on 5-7 in ♂, the rest of abdomen above with bronzy-brownish or dark scaling, those across last tergite white in ♂, dark in ♀; scaling on venter in form of bands of dense white ones across basal halves of sternites 2 and 3 and apical halves of 4, 5 and 6, the rest of scaling on venter dark; scaling on legs whitish, dark on darker outer parts of middle and hind femora. *Wings* entirely glassy hyaline, highly shining, iridescent, the costal cell very slightly subopaquely whitish; first, third and fifth veins pale yellowish, the others darker; first posterior cell very broadly open; discoidal cell broader near base than apically, acute apically, its apical vein feebly S-curved to almost

straight, subparallel to hind margin; second posterior cell slightly broader apically than third, its sides slightly sinuous; third posterior cell much shorter than fourth; middle cross vein a little before middle of discoidal cell; anal cell relatively broadly open; basal comb relatively well developed, pale yellowish, with pale, slightly iridescent, scales; squamae whitish, white-fringed; halteres pale, their knobs whitish. *Head* with the interocular space on vertex in ♂ remarkably narrow, the space behind ocelli narrower than ocellar tubercle, the eyes almost contiguous and thus entirely different from that of *parvicellula* where the space is very wide in ♂; interocular space in ♀ also narrowish, scarcely or not quite twice width of tubercle; occiput distinctly transversely depressed above across postvertical depression; frons in ♀ at least rather convex medially; face distinctly and deeply transversely depressed across its base, thus appearing more pyramidally conical; antennae with joints 1 and 2 rather short, joint 3 conical, longer than former two combined, its style short or very short, not longer than short second joint; bisecting line in eyes posteriorly well developed. *Legs* with the front tibiae non-spiculate; modified front tarsi finely hairy; middle and hind femora with the spines poorly developed, with only 1 or 2 short ones on middle femora and 2 or 3 short ones apically on hind ones; tibiae with spicules poorly developed, those in outer row on hind ones denser than in rest of rows; basal tooth of claws spine-like. *Hypopygium* of ♂ very similar to that of *iridipennis* (cf. text-fig. 273) and *parvicellula*, differing from both in having the apical angles of basal parts distinctly more angular and not rounded; basal strut neither broad nor very narrow; posterior processes of aedeagal complex distinctly much shorter; lateral apical angles of ventral aedeagal process more spine-like than in *parvicellula*.

From 8 ♂♂ and 13 ♀♀ (types in the South African Museum).

Length of body: about 6–9½ mm.

Length of wing: about 5½–9 mm.

Locality: Koup Karoo: Rietvlei on the Nieuveld Escarpment in the Beaufort West Dist. (Zinn and Hesse, Jan. 1949) (types); Merweville (Zinn, Jan.–Feb. 1947); Matjiesfontein (Turner, 19–31 Dec. 1928).

Exoprosopa perlucida n. sp.

Another species belonging to the *iridipennis*, *parvicellula* and *opalina* section, characterized and distinguished from them as follows:

Body mainly black, the head in front shining; buccal rim and streak on each side below antennae or sometimes sides of face yellowish; antennae yellow, joint 3 darker above; postalar calli, apex of scutellum, sides of tergites 2 and 3 and hind margins of rest very obscurely brownish; legs darker than in *opalina*, more like those of *parvicellula*, the front and middle tibiae paler. *Vestiture* with the short hair on frons and face entirely black as in *parvicellula*; pale hairs on body as in the other species, but those on propleurae, sparse ones on lower part of mesopleuron and sides of venter below black or dark velvety brownish, but

some on propleurae and anterior lower part of mesopleuron yellowish; scaling on frons and face appearing dark, but gleaming brilliantly iridescent in certain lights, not dense and white as in ♂ of *opalina* or bluish green as in *parvicellula*; that on sides of face brilliant iridescent; scaling on thorax above dark, but gleaming purplish iridescent, much like that of *parvicellula*; scaling on sternopleuron pearly iridescent; that on abdomen above composed of much dark or black scaling, which gleam iridescent or opalescent in certain lights, and white ones, the latter present on sides of tergite 2 basally and across base of 3, especially sides, to a lesser extent on sides of 4 and more densely across 5-7; scaling across hind margin of last tergite white and dark or appearing dark in certain lights, not entirely pale as in the other species; scaling on venter snow-white across bases of sternites and black on rest of surface; scaling on legs dark, with pale ones on coxae. *Wings* entirely iridescent hyaline as in *opalina*; veins, except basally, slightly darker; other venational characters as in *opalina*; halteres also whitish. *Head* with the interocular space on vertex in ♂ narrower than in ♂♂ of *iridipennis* and *parvicellula*, but slightly broader than in *opalina*, at narrowest part slightly narrower than ocellar tubercle, not subcontiguous; face shorter than in *parvicellula*, more like that of *opalina*, but slightly more pointed and only slightly or scarcely transversely depressed across its base; antennal joint 3 conical, sharply tapering, its style minute. *Legs* with distinctly denser and longer fine hairs on femora than in *opalina*; middle femora with 1 or 2 spines on anterior apical part; hind ones with 3 to 5 spines in apical half below.

From 2 ♂♂ and 1 ♀ (types in the South African Museum).

Length of body: about 7-11 mm.

Length of wing: about 7-9½ mm.

Locality: Zululand: Manguzi River near Maputo (Bell-Marley, Nov.-Dec. 1945) (holotype); Hluhluwe Reserve (Zumpt, 15 Jan. 1950). Portuguese East Africa: Masiene (Lawrence, Dec. 1923) (allotype).

Exoprosopa aerata n. sp.

This species too should be included in the *parvicellula*-section. It may almost be appended to *perlucida* as an Eastern Cape variety of the latter. It however differs in certain distinct characters which appear to separate it specifically from the latter species, from which it differs in the following respects:

Head with the transverse depression between frons and face, though shallower than in *parvicellula* and *opalina*, distinctly much deeper and more impressed than in *perlucida*; antennal joint 3 distinctly stouter, less club-shaped, more conical, distinctly more gradually tapering from the broad base. *Vestiture* with the greater part of propleural tuft and lower part of mesopleural tuft more straw-coloured yellowish, not velvety brownish or black, only hairs in anterior part and on prosternal part of propleural tuft being black; white scaling across base of tergite 2 not confined to sides basally, but narrowly continued as a band right across disc of tergite; white scaling on venter also apparently more

extensive, occurring more extensively on sides than in *perlucida*. Wings with the base up to cross vein in costal cell distinctly darker, more opaquely yellowish, not whitish or subpellucid; basal hook dark brownish; squamae brownish or brown, not pale as in *perlucida*.

From a ♂-specimen in the South African Museum.

Length of body: about $7\frac{1}{2}$ mm.

Length of wing: about 8 mm.

Locality: Boesmans River near Grahamstown (Mus. Exp., March 1954).

Exoprosopa argillocosmia-section

To this section two species of *Exoprosopa* are referred which show the following combination of characters and which distinguish them from species in other sections:

Face on the whole more acutely or sharply and narrowly pointed apically; head and body, excepting only black hairs on frons, with entirely pale hairs and bristles and entirely or predominantly pale scaling, the hairs on body above being usually yellowish and those below more whitish, and the scaling above usually yellowish, ochreous yellow or deep ochreous yellow, replaced on part of frons, entire face, head below and on body below, as well as on legs, by very dense, conspicuous, chalky white or snow-white ones; base of third posterior cell usually tending to be bent at right angles to fourth posterior cell and with an indication of a stump at bend.

Exoprosopa argillocosmia n. sp.

A striking species characterized as follows:

Body mainly black; anterior margin of face and sides of face to a variable extent yellow; buccal rim below head whitish; hinder half of scutellum, very broad sides of tergite 2, less broad sides of 3 and broadish hind margins of tergites and sternites in ♀ reddish, but entire abdomen above and below (excepting only a black, central, narrowish, discal stripe extending to tergite 4 and extreme base of venter) in ♂ yellowish; legs with the femora black, the tibiae paler, more yellowish and tarsi dark. *Vestiture* with the hairs on frons and sparse hairs on upper surfaces of antennae black, the sparse ones on face and antennae below (excepting dark ones at apex of face), the scaling on broad occipital part on vertex and on more than basal half of frons ochreous yellow, the rest of scaling on head in front very dense, chalky white; scaling behind eyes also markedly dense and chalky white; collar above, prealar, postalar and scutellar bristles yellowish; hairs on humeral tubercle and on pleurae entirely snow-white; fine hairs on disc of thorax dark; scaling on thorax and scutellum above dense and ochreous yellow, the streak on each side of thorax and across hind margin of scutellum conspicuously snow-white; scaling on pleurae flattened, markedly dense and snow-white; hairs on sides of abdomen on sides

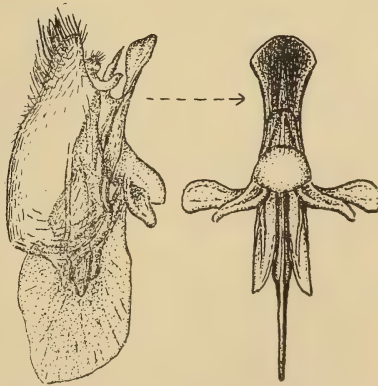
of tergites 1 and 2 and base of 3 white, the rest of hairs on sides and posteriorly and fine ones on abdomen above golden or yellowish; dense scaling on abdomen above uniformly yellowish or ochreous yellowish, only that on extreme sides of tergite 2 and inflexed sides white; dense scaling and hairs on venter entirely snow-white; scaling on legs dense, snow-white. *Wings* greyish hyaline, extensively infuscated yellowish, the infuscation occupying and extending from base to near or to about base of submarginal cross vein and across to include basal third of second posterior cell, more than basal half of third posterior cell, basal two-thirds or three-quarters of fourth posterior cell, more or less entire anal cell and to a fainter extent greater part of axillary lobe, leaving posteriorly only the middle apical parts of third and fourth posterior cells clearer; veins yellowish brownish; basal cross veins of enclosed submarginal cell, first, second, third and fourth posterior cells and to a lesser extent basal cross vein of second submarginal cell darker, showing as faint spot-like infuscations; submarginal cross vein sinuous; first posterior cell broadly open apically, the cell markedly broadened near apex; discoidal cell acute apically, its upper vein outwardly curved apically, its apical vein sinuous, slightly bent inwards, subparallel to hind margin; middle cross vein at about, or just behind, middle of discoidal cell; sides of second posterior cell sinuous, especially outer one; base of second vein sometimes tending to be a little before middle cross vein; squamae yellowish, white-fringed; halteres and knobs pale yellowish. *Head* with the interocular space in ♀ broadish, narrowish in ♂; head in front comparatively narrowish; face markedly sharply or acutely pointed apically; antennal joint 3 conical, tapering, longer than combined length of the relatively short joints 1 and 2, its style a little longer than a third length of joint in ♀, slightly more than half in ♂, slightly broadened apically. *Legs* with the front tibiae non-spiculate; middle and hind femora with relatively few spines in a single row below; hind tibiae with the spicules in outer upper row denser; basal tooth of claws sharp and spine-like. *Hypopygium* of ♂ (text-fig. 274) with the apical angles of basal parts prominent; apices of beaked apical joints without any distinct indentation, their external lateral angles of their basal parts prominent; aedeagus long and very strongly developed; ventral aedeagal process scoop-like.

From 1 ♂ and 4 ♀♀ in the South African Museum.

Length of body: about 8–11 mm.

Length of wing: about 8–11 mm.

Locality: Koup Karoo: Merweville Dist. (Zinn, Jan.–Feb. 1947) (allotype); Rietvlei on the Nieuveld Escarpment in the Beaufort West Dist. (Zinn and



TEXT-FIG. 274. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa argillocosmia* n. sp.

Hesse, Jan. 1949) (holotype). South-West Africa: Oujjo (Mus. Exp., Jan. 1925).

Exoprosopa pleroxantha Hesse

(Hesse, p. 183, *Ann. Transv. Mus.*, xvii, 1936.)

This species which I described from a ♀ in 1936 (loc. cit.) obviously belongs to this section and can scarcely be distinguished from *argillocosmia*, differing from it in only a few respects which, however, appear to be of specific value. It agrees and differs from the latter in the following respects:

Colouring of hairs and scales on body above and below the same; face similarly pointed apically; antennal joint 3 of the same shape, though its style is relatively a little longer; scutellum slightly more extensively reddish; sides of abdomen more broadly and more extensively red; wings distinctly and predominantly glassy hyaline, not extensively infuscated, only the base, costal cell and to a lesser extent first basal cell and a little more than basal half of marginal cell in ♀ and to a very much lesser extent in ♂ pale yellowish; spot-like infuscations on cross veins more conspicuous due to more hyaline wings; discoidal cell distinctly very much less produced, distinctly more subtruncate, its upper vein only slightly and feebly curved outward apically, its apical vein shorter, straight and more inclined to hind margin; base of third posterior cell with a greater, more constant, tendency to give off a short stump; scaling on greater part of frons (excepting only on vertex) not ochreous, but white like on rest of head in front; fine, sparse hairs on disc of thorax not darkish, but yellowish; sides of abdomen, viewed from directly above, with some white scales extending round from inflexed white-scaled sides below, especially in ♂; interocular space on vertex in ♀ tending to be relatively broader.

The ♂ which was unknown to me in 1936 differs from the ♀ in having a narrower interocular space; in having the abdomen even more extensively reddish, leaving only a central row of triangular black spots decreasing in size from tergites 2-5; a predominantly reddish venter; more extensive white scaling on sides of tergites above, especially 2 and 3; more hyaline wings in which at least apical half of first basal cell and marginal cell are not tinged as in ♀.

From a ♂ and a ♀ (original ♀-type in the Transvaal Museum, ♂-type in the British Museum).

Length of body: about 10-12 mm.

Length of wing: about $9\frac{1}{2}$ -12 mm.

Locality: Bechuanaland-Kalahari: Damara Pan (V. L. Kal. Exp., 15-21 April 1930) (♀). South-West Africa: Aus (Turner, Jan. 1930) (♂).

Exoprosopa nemesis-section

As an appendix to the *Exoprosopa*-group the two South African species *Exoprosopa nemesis* (F) and *Exoprosopa formosula* Bezz. may be assigned to two

separate sections respectively both of which may be recognized by the markedly broadened and subangularly dilated or rounded axillary lobe which gives the wings a basally truncated appearance. The peculiar wing-pattern of extensive infuscation and fenestrae, or indications of these, on cross veins also characterizes these two sections.

The *Exoprosopa nemesis*-section which is only represented in South Africa by one species is characterized by the predominantly black body, predominantly black hairs and scales, the broad and extensively infuscated wings which are velvety black and whitish-tipped, with an almost angularly rounded and much broadened axillary lobe, and by the pointed face and bulb-like third antennal joints.

Exoprosopa nemesis (Fabr.)

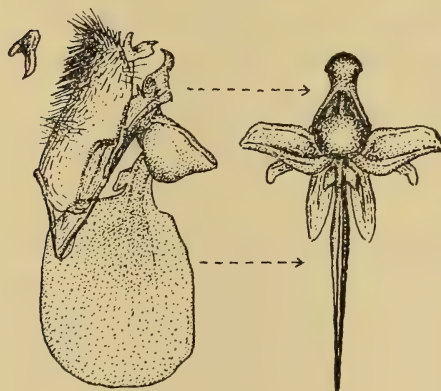
(Fabricius, p. 121, *Systema Antliat.*, 13, 1805 (as *Anthrax*); Wiedemann, p. 582, *Aussereurop. Zweifl. Ins.*, i, 1828 (as *Anthrax*); Bezzi, p. 153 and pl. ii, fig. 29, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 277 and 286 and fig. 26, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Syn. = *nox* Walker, p. 250, *Lis Dipt. Brit. Mus.*, ii, 1849 (as *Anthrax*); Walker, p. 166, *Insecta Saunders Dipt.*, i, 1852 (as *Litorrhynchus*); Röder, p. 137, *Berl. Ent. Zeitschr.*, xxix, 1885; Röder, p. 98, *Wien. Ent. Zeit.*, vii, 1888.)

This striking and widely distributed species of *Exoprosopa* cannot be confused with any other African species. It is characterized as follows:

Body mainly black, but the postalar calli and discal or hinder part of scutellum sometimes obscurely dark ferruginous brownish in some specimens; pleurae and to a certain extent venter usually dark blackish brown or dark piceous brownish; legs very dark blackish brown or also piceous brownish, appearing black due to black scaling; sides of face sometimes in some forms also piceous brownish. *Vestiture* with all the hairs, bristly hairs and bristles on head and body above and below entirely velvety black or sometimes with a very dark blackish brown tint on pleurae, excepting only some pale or whitish hairs in plumula and at extreme base on sides of abdomen in more northern or South-east African forms; scaling on head and body entirely black, excepting some white scaling on last tergite in ♂♂, with the scales, however, gleaming greyish or graphite-like on head in front in certain lights and those on rest of body above gleaming or shining like anthracite. *Wings* markedly broad, broader in ♀ than in ♂, the axillary lobe very broad, subangularly dilated or rounded, giving the wings a truncated appearance at base; wings characteristically and intensely infuscated dull velvety black, only the extreme apex beyond end of marginal cell hyaline whitish or milky whitish; spot-like areas on cross veins and bifurcations shining blackish brown or brownish, only visible in certain lights; pre-discoïdal spot greyish whitish; second vein sharply bent downwards and deeply recurved apically; submarginal cross vein straight or usually slightly sinuous;

first posterior cell broadened near apex, but broadly open; discoidal cell broadened apically, but acute at apex, its upper vein rather roundly bent outwards apically, its apical vein slightly or distinctly S-curved; middle cross vein before middle of discoidal cell; second posterior cell apically a little narrower or sometimes as broad as third, its base in ♀ usually a little more produced than in ♂; anal cell narrowed apically; squamae black, dark-fringed; halteres dark brown. *Head* with the face slightly pyramidally conical, its base very feebly transversely depressed and its apex tending to be slightly indented; buccal cavity also dark, though its anterior rim may be slightly paler in some forms; antennal joint 3 bulb-shaped, attenuated apically, usually shorter or even much shorter than 1 and 2 combined, its style slender, long, as long as or longer than joint. *Legs* with the front tibiae non-spiculate; hind femora with the spines below usually in two rows; spicules on outer aspect of hind tibiae denser than in rest of rows. *Hypopygium* of ♂ (text-fig. 275)



TEXT-FIG. 275. Dorsal or apical view of right beaked apical joint, side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa nemesis* (Fabr.).

with the outer lateral angle of beaked apical joints very prominent, projecting spine-like upwards or apically as seen in side view; ventral aedeagal process slightly broadened apically; lateral struts very strongly developed and large; basal strut markedly developed, broad, racket-shaped and with a pair of wing-like lobes dorsally near its base.

In the British, Rhodesian, Transvaal and South African Museums.

Length of body: about $5\frac{1}{2}$ –13 mm.

Length of wing: about 7–16 mm.

Locality: Cape Province, Orange Free State, Natal, Zululand, Transvaal, South-West Africa and Rhodesia.

The species appears to be slightly variable not only in size, but in characters such as the presence of white hairs in plumula and base of abdomen, the extent to which the scutellum, pleurae and legs are dark piceous brownish. The extreme southern forms appear to be without any or to have much fewer pale hairs in plumula and base of abdomen, whereas northern and East African forms have conspicuous white hairs on these sites.

In labels attached to some specimens collected by the late Mr. Bell-Marley of Natal he states that this species is found hovering over the tunnels in the ground made by Fossorial Wasps and also over mud nests of certain small Solitary Wasps.

Exoprosopa formosula-section

This section, like that containing *nemesis*, at present contains only a single and unique South African species which together with the *nemesis*-section is characterized by the markedly broadened and subangularly dilated or rounded axillary lobe, extensive wing-infuscation in which fenestrae are present on cross veins and bifurcations. The other wing characters of the unique species, *Exoprosopa formosula* Bezz., which I am provisionally referring to this section, are, however, so entirely different from any other South African species of *Exoprosopa* that a separate group or even a separate genus suggests itself. It is characterized by the shortish and broad wings which have a *Thyridanthrax*-like pattern (see pl. ii, fig. 11) with fenestrae on certain cross veins and bifurcations; a first posterior cell which is very broadly open, about as broad apically as second posterior cell, the latter and third posterior cell almost parallel-sided or rhomboidal; truncated discoidal cell, with a straight apical vein; very broadly open anal cell, as broad as second posterior cell; very narrow interocular space on vertex in ♂; and by other characters given in the description of the species below.

Exoprosopa formosula Bezz.

(Bezzi, p. 151, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 277 and 286, *The Bombyliidae of the Ethiopian Region*, 1924.)

Bezzi referred this peculiar and anomalous species to his *pusilla*-group in which he also placed *pusilla* Macq. from West Africa and *jacchoides* Bezz. from Northern Nigeria. Judging from the descriptions and illustrations of wings of the latter two species, it is doubtful whether *formosula* could be made to fit in the same group. The fenestrae on certain cross veins appear to be the only character it has in common with *pusilla* and *jacchoides*. Both the shape of the pattern and venational characters distinguish it at once from *pusilla* and its allies. It is characterized as follows:

Body mainly black; head more dark sienna-brownish than black, the lower sides of face and the buccal cavity being more yellowish brownish; postalar calli, greater part of scutellum, sides of tergites 1 and 2 to a slight extent, obscure hind margins of tergites in ♂, middle or pteropleural part of pleurae and to a great extent the venter, especially in ♂, dark sienna-brownish; legs yellowish brownish to dark sienna-brownish. *Vestiture* with all the hairs on head in front black, the scaling on front part of frons and on face dark, gleaming greyish or bronzy, those on sides of face paler, gleaming silvery opalescent and those behind eyes pale, shining opalescent to iridescent; collar and hairs on pleurae dark blackish brown to black, those on mesopleural part with a more dark velvety brownish tint; thoracic and scutellar bristles also black; scaling on thorax above mainly dark, gleaming brownish, the streak on sides velvety brownish; scales at base of thorax more opalescent or iridescent and hair-like ones on postalar calli white like the plumula; hairs on abdomen above, even those on

sides anteriorly of tergite 1, mostly black, some on sides of tergite 1 posteriorly and in ♂ also some hairs across hind margin of last tergite white; scaling on abdomen above mostly dark or black, gleaming bronzy brownish or graphite-like in certain lights, a transverse patch on sides basally of tergite 2 whitish, gleaming opalescent and in ♂ those on last two tergites white and slightly opalescent, dark and with a bronzy or submetallic iridescent shine in ♀; sparse fine hairs on venter dark, the scaling whitish and opalescent on sternites 1-3, dark or black and bronzy-shining on rest; scaling on legs mainly dark or black, gleaming bronzy. *Wings* (pl. ii, fig. 11) markedly broad, relatively short, the axillary lobe very broad, subtriangularly rounded, especially in ♂, with a very characteristic *Thyridanthrax ternarius*-like type of pattern, consisting of a dark blackish brown infuscation occupying a little more than basal half, extending apically to base of submarginal cross vein in ♀, but falling a little short of this in ♂, then irregularly and slightly arcuately across cells to apex of fifth vein in fourth posterior cell, the upper half of its base to cross veins paler brownish, the lower basal part to about middle of anal and axillary cells, a spot at apex of anal cell, a U-shaped mark across second and first basal cells (enclosing a large, very dark, almost velvety blackish spot), and small spots on basal cross veins of third and fourth posterior cells yellowish; two window-like spots on base of second vein and middle cross vein whitish; uninfuscated apical and hinder parts of wings hyaline iridescent; veins yellowish, but brownish in infuscated part in ♀; submarginal cross vein slightly sinuous, oblique; first posterior cell broadened apically and very broadly open, as broad there as second posterior cell and only a little narrower than third; discoidal cell much broader near base than apically, truncate or subtruncate apically, its apical vein straight, oblique to hind margin; second posterior cell rhomboidal; third posterior cell only a little narrower than fifth, its base at right angles to fourth cell and with a tendency to send off a short stump into discoidal cell; anal cell also markedly broadened apically and very broadly open; middle cross vein a little before middle of discoidal cell; alula rather elongate; squamae yellowish to brownish, white-fringed; knobs of halteres yellowish. *Head* with the interocular space on vertex in ♂ very narrow, about as wide as ocellar tubercle, much broader in ♀; frontal depression well developed, more foveate and relatively larger than in other species; hind margins of eyes very deeply and angularly indented, more so than in other species; antennal joint 3 slightly elongate-conical, longer than 1 and 2 combined, its style short, only about as long as joint 2 and much less than half length of 3. *Legs* with the front tibiae non-spiculate; front tarsi only feebly hairy; middle and hind femora without distinct spines; spicules on tibiae relatively poorly developed; basal tooth of claws minute.

From a ♂ and a ♀ in the South African Museum.

Length of body: about 7 mm.

Length of wing: about 6-6½ mm.

Locality: Cape Province: Hex River Mountains (original ♂-type) and Tradouw Pass in the Langeberge (♀-type).

Pterobates-group

To contain certain Oriental, Mediterranean and Ethiopian species of *Exoprosopa* which show certain anomalous characters, Bezzi created a new subgenus *Pterobates* in 1924 (p. 273, *The Bombyliidae of the Ethiopian Region*). Paramonow, however, in 1928 (p. 184, *Acad. d. Sc. de l'Ukraine*, vi, livr. 2 (*Trav. Mus. Zool., Kiev*, No. 4)) considered the subgeneric characters given by Bezzi for these species as not of sufficient taxonomic value or importance to retain them within such a special subgenus of *Exoprosopa*. The only South African species (*Exoprosopa apicalis* (Wied.)) which belongs to this subgenus is, however, specifically so distinct from any other species of *Exoprosopa* that it deserves to be retained in at least a special group. The chief characters of this group, based on the South African representative, are as follows:

Hind legs with very dense, long, broad and flattened, bat-shaped or cuneiform scales which give them a very conspicuous feathery appearance; wings very darkly infuscated, with metallic reflections, a clear or hyaline apex and yellowish infusions before submarginal cross vein and apical part of anal cell; discoidal cell markedly constricted in middle; apical part of second vein strongly S- or Z-shaped; axillary lobe broad, subangularly dilated or rounded posteriorly; head and body above with broadish, copper-reddish, bronze-coloured, and especially blue metallic-shining, scales; transverse patch of hairs and scales across frons very dense and brush-like.

Exoprosopa apicalis (Wied.)

(Wiedemann, p. 126, 11, *Dipt. Exot.*, i, 1821 (as *Anthrax*); Wiedemann, p. 266, *Aussereurop. Zweifl. Ins.*, i, 1828 (as *Anthrax*); Bezzi, p. 149, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, p. 274, *The Bombyliidae of the Ethiopian Region*, 1924.)

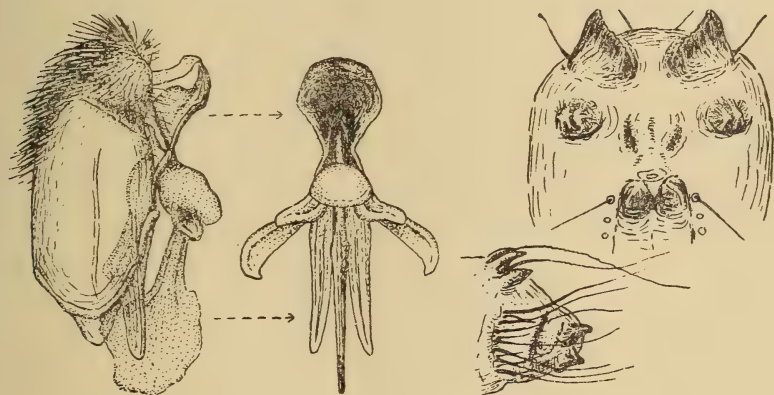
(Syn. = *pennipes* Macquart, nec Wiedemann, p. 49 and tab. 19, fig. 3, *Dipt. Exot.*, ii, 1840; Macquart, p. 71, *Dipt. Exot., Suppl.* v, 1855.)

From Macquart's brief descriptions it is quite evident that his *pennipes* is identical with *apicalis* and that he confused it with Wiedemann's Oriental species of the same name. His locality 'Cap des Aiguilles' (loc. cit., 1855) obviously refers to Cape Agulhas (South Africa) and not to Oceania. The South African species is characterized as follows:

Body mainly black; vertex and head in front, including face, antennal joint 1 (or 1 and 2 or even 3) reddish brownish or yellowish brown, the apical part of face and the part below transverse patch of hairs on frons darker; humeral tubercle, sides of thorax above wing-bases to a variable extent, postalar calli, greater part of scutellum, sutural infusions sometimes present on pleurae and legs also yellowish brown to reddish brown, the tibiae and tarsi usually paler, more reddish. *Vestiture* with the hairs on head in front black, those in two transverse patches on frons, especially front one, very dense, brush-like and with

some reddish brownish hairs across front margins or between the two hinder black patches in some specimens, the black hairs around anterior margin of face also dense; broadish, flattened scales on bare parts of head gleaming bronzy yellowish to copper reddish, those on face discally sometimes blackish, with a violaceous sheen, and those on sides more greyish silvery; head behind eyes shining very dark bluish and with silvery gleaming and slightly iridescent scales; short hairs around occiput fulvous brownish; hairs in collar above composed mostly of fulvous reddish and dark ones, separated in middle by two tufts of whitish ones, those on front part of humeral tubercle reddish fulvous, flanked with white ones on outer side; fine hairs on disc of thorax, sparse ones on humeral tubercle, thoracic and scutellar bristles, very dense, stoutish, brush-like hairs in mesopleural tuft and notopleural part, those on pleurae, abdomen above and very dense ones on sides of abdomen velvety black; plumula fulvous brownish or reddish; hairs on sides of tergite 1 also reddish brownish to fulvous brownish, but appearing dark in certain lights; those on venter mainly black except for some whitish ones medially and basally and in ♀ some yellowish or fulvous ones on sides of ovipositor; scaling on disc of thorax and scutellum very dark blackish blue, that on disc of scutellum sometimes violaceous, but a central streak anteriorly whitish, those on humeral tubercle and transversely across sides at level of wing-bases and to a variable extent on sides and on postalar calli gleaming bright coppery reddish; dense tuft in front just below wing-bases conspicuously snow-white; a short, medial, basal streak of scales on scutellum and on postalar calli yellowish; scaling on abdomen above dense, broadish, metallic-shining and deep dark prussian blue to violaceous blue, without any white or pale ones except for bronzy yellowish ones across hind margin of tergite 1; those on venter dense, very dark bluish or blue blackish; scaling on legs black, gleaming graphite-like in certain lights, those on hind legs very long, bat-shaped, very dense, feathery and very conspicuous. *Wings* very darkly and conspicuously infuscated to end of marginal cell and irregularly across apical part to apex of first posterior cell, the apex clear, with the base, more than basal half of first basal cell, second basal cell and anterior part to near base of submarginal cross vein very dark purplish brown and with sub-metallic or violaceous reflections, the rest of infuscated area very dark, dull velvety blackish brown, but with yellowish before base of submarginal cross vein, across base of fourth posterior cell and apical part of anal cell, in middle part of second basal cell and to a variable extent in less than basal half of axillary lobe and middle cross vein; cross veins in apical and posterior parts and on middle cross vein with very narrow shining whitish borders and with a crescent-shaped shining white mark before base of discoidal cell; discoidal cell markedly contracted in middle, subacute apically, its upper vein convexly curved outwards apically, its apical vein sinuous, subparallel or only slightly oblique to hind margin; middle cross vein a little beyond middle of discoidal cell; second vein sharply Z- or S-curved beyond base of submarginal cross vein and with a tendency for a stump to be present at angle of first bend; first posterior

cell narrowed apically, usually open to a variable extent, but sometimes closed or even shortly stalked; axillary lobe subangularly rounded posteriorly; basal comb well developed, its base above with gleaming yellowish scales; squamae dark brownish, yellowish-fringed; halteres brownish. *Head* with the frontal depression relatively deep and transverse; interocular space on vertex in ♂ narrower than in ♀; face bluntly conical; antennal joint 3 somewhat sharply and shortly conical, as long as or shorter than joints 1 and 2 combined, its style slender, slightly broadened at apex, long, about half or a little more than half length of joint in ♂ and about a third length of joint in ♀. *Legs* with the front tibiae non-spiculate; middle and hind femora with longish spines below; hind femora and tibiae with very dense, bat-shaped scales, giving them a very conspicuous feathery appearance. *Hypopygium* of ♂ as shown in text-fig. 276 (left), with dense, stiff hairs on dorsal apical aspect of basal parts; beaked apical joints with slender, curved beak; ventral aedeagal process ladle-shaped, hollowed out below, its apical edge curved dorsally.



TEXT-FIG. 276. Side view of hypopygium and ventral view of aedeagal apparatus of ♂ *Exoprosopa apicalis* (Wied.); Right: Ventral view of cephalic end of pupal skin and below side view of posterior extremity of pupal skin of the same species.

In the British, Transvaal, Rhodesian and South African Museums.

Length of body: about $10\frac{1}{2}$ –19 mm.

Length of wing: about 10 – $18\frac{1}{2}$ mm.

Locality: Cape Province, Basutoland, Zululand and Southern Rhodesia.

A specimen of this species in the South African Museum was bred from the pupal cocoon of *Tachypompilus ignitus* (Smith) by Mr. R. Dekenah of Cape Town in January 1933. The host is a Pompilid-wasp which preys upon Theraphosid-spiders of the genus *Harpactira*.

The pupal skin of this specimen is like those of most Bombyliids, but it is characterized by having the cephalic processes (text-fig. 276, top right)

flattened, fin-shaped when viewed from ventral aspect, their apical margins serrate; processes on each side below cephalic ones dentate, double; frontal processes close together, shorter than cephalic ones; abdominal part with long setae; caudal spines, two on each side (text-fig. 276, lower right), poorly developed; row of 6 discal spines across hinder part of penultimate segment more strongly developed than caudal spines.

Length of body from tip of cephalic processes and stretched out: about 25 mm.

Width across thorax: about 6 mm.

Widest part across abdomen: about $6\frac{1}{2}$ mm.

Heteralonia-group

A peculiar aberrant species, with maculated or spotted wings, in the South African Museum obviously belongs to the same group as *Exoprosopa oculata* which Macquart (p. 45 and tab. 16, fig. 6, *Dipt. Exot.*, ii, 1840) described from Senegal in West Africa and which Rondani placed in a special genus *Heteralonia* on account of its marginal cell which in its apical part is divided into two by a supernumerary cross vein. Bezzi in his revision of the Bombyliidae of the Ethiopian Region, though not having seen any representatives of this species, recognized this distinction, but placed Rondani's genus as a subgenus of *Exoprosopa*. Both Engel and Paramonow, however, subsequently discarded both the genus and subgenus. As in the case of *Ligyra* there appears to be no other generic differences between *Heteralonia* and *Exoprosopa* except certain venational characters in the wings. The chief venational difference is the presence of an *extra oblique cross vein which divides the anterior apical submarginal cell into two* and not a 'supernumerary cross vein in the marginal cell' as Bezzi maintained. This anomaly, as is also evident from this second species, appears to be a constant feature and not a venational freak. The fact that there are now two distinct African species, both showing the same type of apical venation and a similar wing-pattern, points to the conclusion that as in the case of *Ligyra* there is some justification for regarding *Heteralonia* not as a subgenus of *Exoprosopa* but as a separate genus. In view of the present confusion as regards the true generic or subgeneric identity of the various groups lumped together under *Exoprosopa*, this species and its West African counterpart are also provisionally referred to a special group of the latter genus which is characterized as follows:

Wings (pl. ii, fig. 12) with 4 submarginal cells of which two are completely enclosed, and apical part of wings with 3 cells formed as a result of the division of the normal anterior apical cell beyond submarginal cross vein into two cells by an oblique supernumerary cross vein which incidentally gives the appearance as if the marginal cell is divided by a cross vein; apex of true marginal cell truncate; apical part of second vein sharply bent at right angles; axillary lobe narrowish; wing-pattern in known species usually in form of an infuscation and spots on cross veins and bifurcations and near ends of posterior veins.

Exoprosopa kaokoënsis n. sp.

This South-West African species is characterized as follows:

Body mainly dark brown to blackish brown; margin of buccal cavity and genal sides of face below yellowish; postalar calli, obscure hind border or apex of scutellum, narrowish hind margins of tergites obscurely, sutural parts of pleurae to a variable extent and hind margins of sternites slightly more yellowish or reddish brownish; legs reddish brown, the front femora darker, the apical parts of front femora and all the tibiae and tarsi paler, more yellowish. *Vestiture* with all the hairs on head in front black; scaling on head in front dull or greyish yellowish, that behind eyes also dull pale yellowish; hairs in collar above, upper part of mesopleural tuft, most of hairs in propleural tuft and metapleural tuft straw-coloured yellowish to yellowish; fine hairs on thorax and scutellum above, notopleural hairs, thoracic and scutellar bristles, some hairs in propleural tuft and on prosternal part, rest of hairs on pleurae and some coxal bristly hairs black; scaling on thorax and scutellum above dull yellowish, those anteriorly in streaks separated by fine dark ones, those on sides and across hind margin of scutellum paler, more whitish; scaling on pleurae sparse, yellowish; plumula and hairs on sides of tergite 1 and base on sides of 2 whitish; hairs on rest of sides of abdomen sparse, shortish, black; hairs on venter gleaming golden or sericeous yellowish at base, the rest black; scaling on abdomen above composed of yellowish, whitish and dark or blackish ones, the more whitish ones arranged densely across sides of basal half of tergite 2, across sides of 3, more or less across hinder part of 4 and as a central series of segmental spots on all the tergites, the more yellowish ones across hind margin of 1, middle of 2, across bases of 3 and 4, hind margin of 5 and sides and hinder part of 6 and more or less on entire 7 where they are also less deeply yellowish, the dark or black ones across hind part of tergite 2, middle and hinder part of 3 to a variable extent, across middle of 4, greater part of 5 and 6 (not occupied by pale ones); scaling on venter mostly dull yellowish or buff-coloured, but with dark ones intermixed; scaling on legs mainly yellowish or buff-coloured, dark on outer or anterior faces. *Wings* (pl. ii, fig. 12) rather narrowed basally, appearing as if stalked, the axillary lobe short and narrowish, not much broader than anal cell; infuscation and pattern of spots or clouds on cross veins and bifurcations as shown in figure, the clear parts greyish hyaline; second vein sinuous apically especially beyond base of submarginal cross vein, its end rapidly bent to margin at right angles, the marginal cell thus truncate apically; anterior apical submarginal cell divided into two by an oblique cross vein; apical part of wings, apart from normal enclosed submarginal cell, thus with three cells; first posterior cell elongate, narrowish, scarcely broadened in apical part, narrowed apically and either open or closed and sessile; discoidal cell narrowish, acute apically and basally, its apical vein S-curved; middle cross vein a little before or at about middle of discoidal cell; sides of second posterior cell sinuous, the cell apically slightly or much broader than third; third posterior cell only a little shorter than fourth;

anal cell very broadly open apically; alula narrow; squamae yellowish, pale-fringed; halteres yellowish, with yellowish knobs. *Head* with the interocular space in ♂ not apparently narrower than in ♀; head in front anteriorly relatively narrowish; antennal joint 3 conical, slightly longer than joints 1 and 2 combined, its style quite or nearly half length of joint; proboscis projecting slightly beyond buccal cavity; hind margin of eyes sharply and angularly indented. *Legs* with the front tibiae non-spiculate; modified front tarsi only finely hairy; middle and hind femora with a few spines below; spicules in outer row on hind tibiae not denser than in rest of rows; basal tooth of claws distinct, spine-like.

From a ♂ and a ♀ in the South African Museum.

Length of body: about 7–8 mm.

Length of wing: about 7–9 mm.

Locality: South-West Africa: Kamanyab in the Kaokoveld (Mus. Exp., March 1925).

Compared with Macquart's brief description and figure of the wing of the West African species *oculata*, this species appears to differ in having no pale hairs on face, in having distinctly more extensive infuscation in wings which also extends down and occupies most of the first posterior cell and enclosed submarginal cell, in not having such conspicuous fenestrae in spots, in having a large spot near apex of vein between anal and axillary cells, an anal cell which is much broader open and a very much narrower axillary lobe.

Species incertae sedis

The following species of *Exoprosopa*, described from South Africa, are either not represented in the collections before me or they have not been recognized by me owing to short, unsatisfactory or faulty descriptions:

Exoprosopa alternans Macquart, p. 71, *Dipt. Exot., Suppl.* v, 69, tab. 3, fig. 5, 1855 (which according to Paramonow (p. 517, *Ann. Mag. Nat. Hist.*, (12), iii, 1950) is an African and not an Oceanian species).

Exoprosopa costalis Macquart, p. 107, *Dipt. Exot., Suppl.* i, 1846.

Exoprosopa exigua Macquart (Syn. = *tenuis* Macquart), p. 68 and tab. 3, fig. 1, *Dipt. Exot., Suppl.* v, 1855.

Exoprosopa indecisa Walker, p. 250, *List Dipt. Ins. Brit. Mus.*, ii, 1849 (as *Anthrax*) and p. 166, *Insecta Saunders Dipt.*, i, 1852 (as *Litorrhynchus*). A species which is probably very near *parvula* Bezz. (n.n. for *parva* Ricardo).

Exoprosopa obtusa Bezzi, pp. 279 and 297 and fig. 30, *The Bombyliidae of the Ethiopian Region*, 1924. From the description of the wings it is doubtful whether figure 30 is a wing of this species.

Exoprosopa unifasciata Ricardo, p. 95, *Ann. Mag. Nat. Hist.*, vii (7), 1901.

Gen. *Atrichochira* n. gen.

(New genus for *Exoprosopa pediformis* Bezzi, p. 160, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 285 and 351, *The Bombyliidae of the Ethiopian Region*, 1924.)

The species *pediformis* was described by Bezzi as belonging to the genus *Exoprosopa*. It, however, shows certain distinct characters which are not present to the same extent in any of the subgenera, groups and species of *Exoprosopa* s. l. and which necessitate its removal from this assemblage. It, however, has more in common with the *Exoprosopa* assemblage of subgenera and groups than with the genus *Thyridanthrax* or *Litorrhynchus* and should therefore be placed either before *Exoprosopa* or as an appendix of the latter. From *Exoprosopa* and its various groups it may be distinguished as follows:

Head with the face more rounded, more subtumid, less conical and relatively broader; occiput relatively longer and sloping, not foveately depressed anteriorly; genal furrows more defined, slightly broader and deeper. *Thorax* longer relative to scutellum than in *Exoprosopa*; thoracic and scutellar bristles markedly short, reduced or even absent. *Wings* greyish whitish or yellowish subopaque. *Legs* with the spines on femora much reduced or absent and the spicules on tibiae, as well as the apical spurs, feebly developed or much shorter than in *Exoprosopa*; anterior tarsi not or scarcely modified and not hairy, their claws distinctly less reduced; claws with the basal tooth very much reduced, very shortly spine-like.

In certain other characters, such as a predominantly reddish head and body, the relatively short, straight and oblique apical vein of discoidal cell, relatively short and rectangular second posterior cell, it also differs from most species of *Exoprosopa*. The hypopygium of the ♂ (text-fig. 277) also differs from that of most forms of *Exoprosopa* in having the beaked apical joints hook-shaped, the slender beak curved upwards and outwards and its apex not bifid, indented or notched.

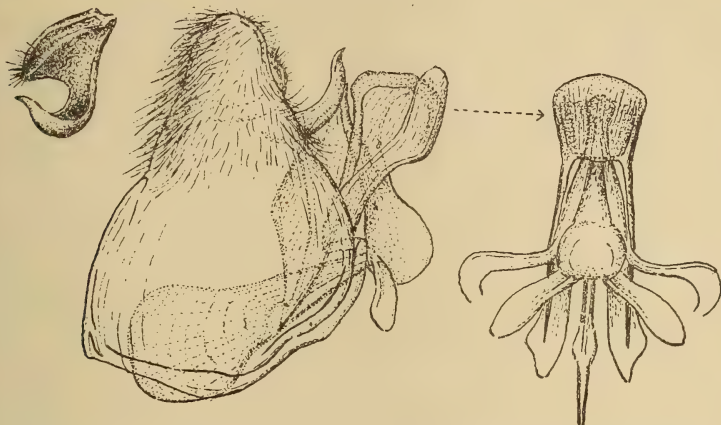
From *Litorrhynchus* it also differs in most of the above-mentioned characters, but primarily in the absence of the characteristic wing-pattern, more truncate discoidal cell, much shorter and less contorted second posterior cell, much shorter and more reduced proboscis, non-spiculate anterior tibiae and feeble development of the basal tooth of claws.

The genotype is the species *Exoprosopa pediformis* which Bezzi described from Nyasaland, but which also occurs in South Africa. The other species which according to Bezzi also belongs to this group, but which I have not seen, is *inermis* Bezz. described from a solitary ♂-specimen from Nyasaland (p. 638, *Trans. Ent. Soc. Lond.*, 1911 (1912)). According to his description and his keys this latter species differs from *pediformis* in having a less basally broadened third antennal joint which also has a distinct and much longer style.

Atrichochira pediformis (Bezz.)

Body, including head and legs, mainly yellowish red, reddish or reddish brown, but the eyes and sometimes a discal streak on face, proboscis, occipital cavity, third antennal joints sometimes, discal part of thorax above, a medial discal spot on tergite 2, a smaller central one on 3, sternal part sometimes, sometimes also last sternite and to a certain extent apical parts of tarsi darkened or black; occipital part tending to be more orange or salmon-reddish. *Vestiture* with the shortish hairs on head in front mainly black, yellowish on sides of face; fine hairs on thorax above, sparse ones on scutellum, fine ones on abdomen above, intermixed ones on sides of abdomen, longer ones across hind margins of posterior tergites and in ♀ numerous intermixed ones on last sternite and spines and spicules on legs also black; rest of hairs on thorax, on pleurae, sides of abdomen on tergites 1 and 2 and intermixed on sides of rest and on venter pale, gleaming sericeous whitish to sericeous yellowish; those along notopleural part, in upper part of mesopleuron and on sides of abdomen basally gleaming more whitish in certain lights; intermixed ones on sides of abdomen, on venter and among dark ones across hind margins of last tergite and sternite gleaming more yellowish to pale golden; scaling on head in front cream-coloured to pale yellowish; that on thorax brownish on sides, yellowish discally; hair-like scales on sides of thorax dense, conspicuous and whitish; that across hinder part and on sides of scutellum whitish; scaling on abdomen white, yellowish and dark or black, the white ones concentrated on sides basally of tergite 2, across at least basal half of 3, sides of 4 and 5, sides and hind margin of 6 and sides of 7, the yellowish ones on sides across hinder half of 2 and more or less across other tergites where white ones are absent and also across hind margins of 5 and 4 in the middle, and with the black ones discally on black spots and across hind margins of tergites 2-4, especially on sides; scaling on body below and legs whitish. *Wings* subopaquely greyish yellowish to yellowish whitish, paler at base and in costal cell; veins yellowish to brownish, with very faint fuscous borders, slightly darker than background; discoidal cell pediform, slightly dilated near apex, its apical vein straight, relatively short, oblique; first posterior cell broadly open; sides of shortish second posterior cell straight; straight base of third posterior cell usually with a stump projecting into discoidal cell; middle cross vein at about or around middle of discoidal cell; whitish prediscoidal spot usually across base of vein between second basal and discoidal cells; upper branch of cubital fork twice curved at right angles. *Head* with antennal joint 3 conical, rapidly narrowed from a slight bulb-like base, more than apical half of joint slender, rod-like and with a short, spine-like style at end; proboscis shortish, scarcely or not projecting beyond buccal cavity, finely spinulate below. *Legs* without and spines on front and middle femora and with shortish ones on hind ones; tibiae with the front ones non-spiculate, slightly curved; middle and hind ones with shortish spicules and spurs; front tarsi, though shorter than the others in both sexes, not distinctly modified, not densely hairy; front claws,

though shorter than others, not markedly reduced. *Hypopygium* of ♂ (text-fig. 277) with the beaked apical joints curved upwards and slightly outwards and the transverse basal carinate ridge sharp; aedeagal apparatus with the ventral process as shown in side and ventral views.



TEXT-FIG. 277. Dorsal or apical view of right beaked apical joint, side view of hypopygium and ventral view of detached aedeagal apparatus of ♂ *Atrichochira pediformis* (Bezz.).

In the Durban, Transvaal and South African Museums.

Length of body: about 10–13½ mm.

Length of wing: about 9–13 mm.

Locality: Southern and South-eastern forested parts of the Cape Province, Natal and Zululand.

Gen. *Ligyra* (*Hyperalonia olim*) Newm.

(Newman, p. 220, *The Entomologist*, i, No. xiv, 1841; Paramonow, pp. 220–222, *Proc. Roy. Ent. Soc. Lond.*, ser. B, 22, 1953.)

(Syn. (according to Paramonow) = *Hyperalonia* Rondani, p. 58, *Archivio per la Zool.*, iii (sept), 1863; Ricardo, p. 103, *Ann. Mag. Nat. Hist.*, vii (7), 1901; Becker, pp. 433 and 454, *Ann. Mus. Zool. Acad. Imp. d. Sc. St. Petersb.*, xvii, 1912; Bezzi, p. 651, *Trans. Ent. Soc. Lond.*, 1911; Bezzi, p. 163, *Ann. S. Afr. Mus.*, xviii, 1921; Bezzi, pp. 29 and 360, *The Bombyliidae of the Ethiopian Region*, 1924; Paramonow, pp. 59–71, *Acad. d. Sc. de l'Ukraine*, No. 9 (*Trav. Mus. Zool.*, No. 11), 1931; Engel, pp. 453 and 455, *Die Fliegen d. Pal. Reg.*, lief. 101, 1936; Hesse, p. 184, *Ann. Transv. Mus.*, xvii, 1936.)

Paramonow who has revised the Palaearctic forms of *Hyperalonia* in 1931 (loc. cit.), has recently (loc. cit., 1953) transferred African species of this genus to the much older and apparently forgotten genus *Ligyra* which Newman

established in 1841 to contain the Australian species *Anthrax fasciata* F., a species which itself was apparently wrongly placed in *Comptosia* and in the synonymic genus *Neuria*, and which Paramonow maintains is generically identical with *Hyperalonia*. The prior claim of *Ligyra* thus necessitates the transference of all the African representatives of *Hyperalonia* to it.

The genus *Ligyra* does not differ much from *Exoprosopa*. Most authors have retained it (*Hyperalonia olim*) as a distinct and separate genus though Engel relegated it as a subgenus of *Exoprosopa* in 1936. If however the genus *Litorrhynchus*, which is hardly generically different from *Exoprosopa*, be accorded a separate generic status, there is no reason why *Ligyra* (*Hyperalonia olim*) which constantly has four submarginal cells, should not be recognized as a distinct genus. If however on the other hand certain species, such as *iridipennis*, *opalina*, *parvicellula*, *nemesis*, *formosula*, *apicalis* and *kaokoënsis*, which show certain aberrant and anomalous characters, are to be retained in the genus *Exoprosopa* there appears to be some justification for retaining *Ligyra* (*Hyperalonia olim*) as a subgenus of *Exoprosopa*. Pending a thorough revision of *Exoprosopa*, not only in the Ethiopian Region as a whole, but also in other parts of the world, *Ligyra* is provisionally here also retained as a separate genus like *Litorrhynchus* and my new genus *Atrichochira*.

Ligyra differs from *Exoprosopa* practically only in the constant presence of four submarginal cells in the wings, which in the case of *Ligyra* are formed by a cross vein which unites the branches of the cubital fork, or in other words the normal second submarginal cell is constantly divided into two by a cross vein extending from the backward bend in its upper vein to the apex or near the apex of first posterior cell. The hypopygia of the ♂♂ do not differ very much from those of *Exoprosopa* in the shape and structure of the beaked apical joints and the aedeagal process.

Key to the South African species of Ligyra seen by me

1. (a) Wings uniformly infuscated yellowish brownish, brownish, or purplish brown throughout, or at most with only the middle parts of cells slightly less dark, but without any clearly defined and conspicuous hyaline parts, spots or bands; apical part of discoidal cell and base of second posterior cell distinctly more produced, more lobe-like, the vein between them usually longer, more S-curved; antennal joint 3 relatively shorter, more conical, its style much longer, very much longer than half length of joint or sometimes even subequal in length to joint; abdomen with more pale scaling, either yellowish or golden, more broadly and extensively on sides, or with more or entirely pale ones on sides of tergites 3-5; legs paler, yellowish or reddish, with much yellowish scaling or entirely yellowish-scaled. 2 (*nigripennis*-group) (p. 917)
- (b) Wings not entirely and uniformly infuscated throughout and, if extensively infuscated, usually also with extensive and clearly defined hyaline parts, spots or bands; apical part of discoidal cell and base of second posterior cell distinctly less produced, shorter, blunter, distinctly less lobe-like, the vein between them shorter, straighter or distinctly less S-curved; antennal joint 3 much longer, more elongate-conical, its style much shorter, less or much less than half length of joint; abdomen, apart from pale or pale golden scaling on certain tergites, with less extensive pale scaling on sides, that on sides of tergites 3-5 either entirely dark or with much black scaling even if pale ones are present; legs darker, dark reddish brown to black, mainly dark-scaled. 5

2. (a) Wings more yellowish brownish or reddish brownish, sometimes ochreous brownish, with distinct, well-defined, often conspicuous, darker, spot-like infuscations on cross veins and bifurcations and often also indistinctly at ends of posterior veins; entire head, including antennae or at least joints 1 and 2, and excepting only dark eyes, vertex and sometimes middle parts above or below, yellowish or yellowish reddish; entire or greater part of scutellum, very broad or at least lateral third of abdomen, usually more so in ♂♂, broadish hind margins of tergites, greater part or middle parts of pleurae and entire or greater part of venter yellowish reddish or reddish; pale scales on sides of abdomen above duller, paler yellowish, and without or with relatively fewer black scaling discally; hind part of collar above without any or with fewer longish dark hairs and sides of face with fewer dark hairs; face relatively longer. 3
- (b) Wings distinctly darker, very dark purplish brownish or dark smoky brownish to blackish brown, without any or with only very feebly-indicated spots or infusions and without any spot-like infuscations at ends of posterior veins; sides of head and basal part or basal half of frons black, the antennae dark or black; base of scutellum more extensively dark and sides of abdomen in both sexes less or much less broadly reddish, the black on disc much more extensive, pleurae usually entirely dark, and usually only hind margins of sternites reddish; pale scales on sides of abdomen above more fulvous or reddish yellowish or shining golden yellow and with more extensive black scaling discally or down middle; hind part of collar above with denser, more conspicuous, longish, black hairs and sides of face with more black hairs; face relatively shorter. 4
3. (a) Scaling on abdomen above entirely yellowish or ochreous yellowish, without any black ones discally; collar and hairs on pleurae, sides of abdomen and on venter paler yellowish, even cream-coloured or more whitish below; tuft of fine hair-like scales in front and just below wing-base very pale, more whitish; hairs on sides of face more extensively or entirely yellowish; occiput medially above yellowish or reddish, without a conspicuous postvertical black spot; posterior margin of occiput not black; head below yellowish or reddish; pleurae mainly or entirely yellowish, and base of thorax in ♀ sometimes reddish; infuscation in wings duller, tending to be paler, more ochreous brownish or yellowish brownish, with a greater tendency for middle of cells and apex to be paler, the spot-like infuscations on cross veins appearing more distinct. ♂ ♀ *vittata* (Ric.) (p. 917)
- (b) Scaling on abdomen above tending to be more rufous-tinted and with distinct and often numerous black scales discally on at least tergites 2-4; collar, hairs in mesopleural tuft and especially in propleural tuft, middle and pteropleural parts, on sides of abdomen, especially tergite 2, deeper yellowish reddish or more fulvous reddish and on the whole more yellowish than whitish on venter below; tuft in front of wing-base fulvous reddish; hairs on sides of face more extensively black, only those on extreme sides and along buccal rim yellowish to reddish; occiput medially above with a large postvertical black spot; hind margin of occiput black; head below medially black or dark; pleurae with much black, the mesopleuron, metapleural parts, and sometimes to a variable extent even middle parts, black, and base of thorax in ♀ black; infuscation in wings on the whole darker, more reddish brownish, more bronzy shining, more uniform, the middle of cells not or less clearer yellowish, and spot-like infuscations thus less evident or contrasting. ♂ ♀ *paris* (Bezz.) (p. 919)
4. (a) Hairs in collar, propleural tuft, upper part of mesopleural tuft, metapleural tuft, sides of abdomen in basal half bright reddish or deep fulvous or fiery reddish; scaling on sides of abdomen above reddish yellowish or fulvous reddish, with more extensive black or dark scaling discally and also on scutellum and base of thorax; scales behind eyes yellowish or yellowish reddish; those on pleurae and sternopleuron and venter, as well as hairs on latter, fulvous reddish or reddish yellowish; scaling on outer apical parts of femora mainly yellowish; wings more uniformly very dark purplish brown to blackish brown throughout, with darker spots more distinctly indicated; apical vein of discoidal cell much longer, more deeply S-curved, the base of second posterior cell thus considerably broader than its apex. ♂ ♀ *coleoprata* (Bezz.) (p. 921)
- (b) Hairs in collar, metapleural tuft and to a certain extent those on sides of abdomen in basal half more chrome yellowish, the mesopleural tuft and hairs on lower pleural parts

- paler yellowish or even more yellowish whitish, becoming whitish lower down; scaling on upper part of occiput, on sides of abdomen above, on scutellum and base of thorax brilliantly golden yellowish or brassy yellowish; scales behind eyes silvery whitish; those on pleurae, sternopleuron and on venter, as well as hairs on latter, white or snow-white; scaling on legs with some on outer apical parts of femora dark or blackish; wings duller purplish brownish or dark smoky brownish, becoming slightly paler apically, the spot-like infusions less evident or wanting; apical vein of discoidal cell distinctly shorter, less deeply S-curved, the base of second posterior cell thus scarcely or not much broader than its apex. . . . ♂ ♀ *nigripennis* (Lw.) (p. 922)
5. (a) Wings mainly or almost entirely glassy hyaline, without any conspicuous pattern of dark infuscations or cross bands and clearer areas or spots, at most only infuscated at base, in costal cell, first basal cell and to a lesser extent along upper part of marginal cell; enclosed supernumerary submarginal cell longer, not or only a little or scarcely broader apically than basally; scaling on abdomen above arranged in distinctly more regular cross bands of pale and black ones; entire frons, discal part of face or even greater part of latter black; smaller forms, not reaching a body-length of 17 mm. and with a wing-length of less than 19 mm. . . . 6 (*sisyphus*-group) (p. 923)
- (b) Wings with more extensive infuscation, with an extensive or sometimes striking pattern of dark cross bands, or with extensive infuscation interrupted by conspicuous clear areas or window-like spots in certain cells; enclosed supernumerary submarginal cell broader, more distinctly or much broader apically than basally; scaling on abdomen above either in less regular cross bands of pale and black ones (these being interrupted discally to a variable extent), or pale ones occur only on sides basally and on last two tergites (in which case they are usually brilliantly shining metallic golden or brassy); frons or anterior part of latter and sometimes face or sides of face yellowish red or reddish to a variable extent; larger forms, often much longer than 17 mm., with a wing-length of much more than 19 mm. . . . 7
6. (a) Front tibiae without any distinct spicules; face more extensively or almost entirely black on sides, mainly pale-haired, only small apical tuft being black and with much denser or very dense, more silvery whitish, gleaming scales on face and also on front half of frons; mesopleural hairs entirely pale, straw-coloured to whitish, with much fewer dark hairs on coxae, even front ones; hairs on sides of abdomen either entirely pale, cream-coloured, yellowish whitish to very pale yellowish, or with only a few or much fewer intermixed dark ones (mostly in upper part of sides) on last few tergites; base, costal cell and first basal cell (to a variable extent) in wings paler, more yellowish; cross veins in basal half without any distinct infusions; knobs of halteres paler above or almost whitish; antennal joint 3 distinctly longer, more elongate-conical, its style relative to joint much shorter, very much less than half length of latter, sometimes only about a third its length. . . . ♂ ♀ *sisyphus* (Fabr.) (p. 923)
- (b) Front tibiae with distinct spicules; face more extensively or entirely yellowish red or reddish on sides, only darkened discally or medially above, black-haired and with sparser, less gleaming or shining, greyish yellowish scales, appearing dark discally above; mesopleuron (apart from upper pale part of tuft), coxae, especially front ones, and sides of tergites 3-7 with more numerous or dense black hairs; base, costal cell, first basal cell (either entirely in ♀ or in basal half in ♂) and to a fainter extent basal part of marginal cell in ♀ distinctly darker brownish to blackish brown; cross veins in basal half with more distinct infuscations; knobs of halteres darker or very dark above; antennal joint 3 much shorter, its style relative to joint distinctly longer, quite or nearly half length of latter. . . . ♂ ♀ *atricosta* (Bezz.) (p. 925)
7. (a) Wings shorter and broader, with a pattern consisting of a blackish brown infuscation extending to opposite level of apex of false vein in costal cell and from there irregularly across and across apex of discoidal cell to near hind margin, the apical parts of second and third posterior cells however hyaline, with the middle apical area of fourth posterior cell also clearer, and with a large, well-defined, hyaline spot or window in apical part or half of second basal cell, a clear broad hyaline area just below former in middle of anal cell continuous with the clear hyaline axillary lobe which is only darkened basally; discoidal cell entirely infuscated, produced more lobe-like apically, not dilated apically, its apical vein longer, more S-curved; middle cross vein near or at about middle of

discoidal cell; abdomen with pale yellowish white scaling on sides across base on sides of tergite 2, across basal parts on sides of 3 and 4 and to a certain extent across 5, and with white scaling on entire 6 and 7; hairs on sides of abdomen mostly pale up to tergite 6; those in collar, upper part of mesopleural tuft and in metapleural tuft paler yellowish or more creamy yellowish; legs, though black-scaled, more yellowish or reddish brownish, with distinctly much shorter dense scaling on hind tibiae and with feebler, fewer and shorter spicules on front tibiae.

♂ ♀ *thyridophora* (Bezz.) (p. 926)

- (b) Wings elongate, narrowish, with an entirely different pattern of blackish brown or black infuscation, either in cross bands or more extensive to near apex, with the hyaline parts either in cross bands (separated by the dark ones), or in form of a large, oval, clearly defined, discal spot, a clear apex and narrow clear hind margin; discoidal cell in greater part clear or with a large, oval, clear spot, the cell itself broadened apically, subacute, not produced lobe-like, its apical vein shorter, straight or only slightly S-curved; middle cross vein much before middle of discoidal cell; abdomen mostly black-scaled above, the pale ones only on sides of tergite 2 or 2 and 3 and across or discally only on 6 and 7 and shining brightly brassy or golden yellowish; hairs on sides of entire abdomen or from tergite 4 to apex black; those in collar and meso- and metapleural tufts deep orange yellowish or carmine red; legs darker or black, with distinctly much longer and denser feathery scales on hind ones or hind tibiae and with more numerous and much longer spicules on front tibiae.

8 (*venus-group*) (p. 928)

8. (a) Wings hyaline, but with the base, costal part, a broadish band across basal part of discoidal cell and apical part of second basal cell to hind margin and either a second broad band across level of second posterior cell (♀) or the entire apical part beyond discoidal cell blackish brown; sides of head, the eyes and most of face black; hairs in collar, meso- and metapleural tufts deep yellowish or orange yellow; hairs on sides of abdomen up to tergite 4 and those on pleurae and venter whitish; scaling on face dense, mainly sericeous yellowish; that in broad patch on sides of tergite 2, narrowly across base of 2, on sides of 3 and on entire 6 and 7 shining bright brassy yellowish; scaling on body below and venter whitish; feathery scaling on hind legs shorter, less conspicuous.

♂ ♀ *enderleini* (Par.) (p. 928)

- (b) Wings very dark blackish brown to end of fourth enclosed submarginal cell, but with the apex, a conspicuous, well-defined, oval spot or window occupying most of discoidal cell, and the hind border of wings from anal cell to first posterior cell, and to a lesser extent along hind margin of axillary lobe, hyaline; entire head, excepting darker reddish or reddish brown eyes, and the black part below, yellowish red to vermilion reddish; hairs in collar, upper part of mesopleural tuft and metapleural tuft deep carmine red; rest of hairs on body above and below entirely black; scaling on sides of face and some sparse ones on frons silvery, rest of scaling on head in front black; a triangular patch of scales on sides of tergite 2 and a discal patch on 6 and 7 bright brassy yellowish or golden; rest of scaling on body above and below entirely black; feathery scaling on hind legs very dense, very long and conspicuous.

♂ ♀ *mars* (Bezz.) (p. 929)

Ligyra nigripennis-group

Ligyra vittata (Ric.)

(Ricardo, p. 104, *Ann. Mag. Nat. Hist.*, vii (7), 1901 (as *Hyperalonia*);

Bezzi, p. 652, *Trans. Ent. Soc. Lond.*, 1911 (1912); Bezzi, p. 361,

The Bombyliidae of the Ethiopian Region, 1924; Hesse, p. 184, *Ann.*

Transv. Mus., xvii, 1936.)

In view of the fact that there are two very closely related species having most of their characters in common, the true identity of this species is somewhat

doubtful. A series of ♂♂ and ♀♀ in the collections before me however agree more with the description of Ricardo than the next species and these I take to represent the true *vittata*. It is characterized as follows:

Body with head and antennae, excepting dark blackish brown or black eyes, dark proboscis and sometimes darkened antennal joint 3, yellowish reddish, orange reddish to red; thorax above black; postalar calli, sometimes sides above wings and, in ♀, sometimes base of thorax, and entire or greater part of scutellum reddish; pleurae either entirely yellowish or sternal parts and sternopleuron darkened to a variable extent; abdomen very broadly yellowish reddish to red on sides, leaving only a central row of black triangular patches, sometimes decreasing in size on tergites 2-5 in ♂, and in ♀ with the black discal patches more often broader, continued to last tergite or sometimes even greater part of abdomen above extensively darkened; hind margins of tergites and entire or greater part of venter or in some ♀♀ at least very broad hind margins of sternites also reddish; legs pale yellowish reddish. *Vestiture* with the hairs on head in front mostly black, those on antennae below, on sides below antennae and on entire sides of face gleaming golden yellowish; scaling on head in front yellowish, slightly paler on sides of face; that behind eyes pale yellowish to cream-coloured; collar and upper anterior part of mesopleural tuft yellowish; rest of hairs and scales on pleurae also yellowish, becoming paler, even more cream-coloured below; tuft of dense, fine, hair-like scales just below wing-base very pale yellowish white to whitish; fine hairs on thorax above, prealar, postalar and scutellar bristles and some bristly hairs on coxae black; scaling on thorax fine, dense, reddish yellowish to rufous; that on pleurae hair-like, dense, cream-coloured to almost white; hairs on sides of abdomen fairly dense, pale yellowish to yellow, even yellowish whitish on extreme sides of tergites 1-3, but with intermixed black ones on sides of 2 and 3 posteriorly; rest of hairs on sides of abdomen black like those on disc, but with pale ones intermixed, especially on extreme sides below; scaling on abdomen above dense, denser and longer on sides, quite long among hairs on extreme sides, entirely yellowish to ochreous, paler, more cream-coloured on sides; hairs on venter very pale yellowish whitish to almost sericeous whitish, the scaling dense, more whitish than yellowish, whitish across hind margins of sternites; scaling on legs pale yellowish, appearing whitish in certain lights. *Wings* entirely infuscated ochreous brownish or yellowish brownish, with a very slight bronzy sheen, the apex and middle parts of cells usually slightly paler, more yellowish; distinct and often conspicuous, dark, spot-like infuscations on cross veins and sometimes also indistinctly at ends of posterior veins; discoidal cell depressed above at level of middle cross vein, the apical part of its upper vein convexly curved outwards, its apical cross vein long, distinctly and deeply S-curved; middle cross vein a little beyond middle of discoidal cell; second posterior cell much broader basally than apically and there very much narrower than third; vein between second and third posterior cells sinuous or S-curved; squamae yellowish brownish, ochreous-fringed; halteres yellowish, very pale-knobbed. *Head* with

the interocular space scarcely and only slightly narrower in ♂ than in ♀; antennal joint 3 sharply conical, as long as, or sometimes even slightly shorter than, 1 and 2 combined, its style long, slender, slightly broadened apically, about as long as or a little shorter than joint in ♂, and in ♀ nearly as long as joint or at least much more than half length of joint. *Legs* with some minute spicules on front tibiae; front tarsi in ♀ with denser hairs than in ♂; front femora with some spines above; middle and hind ones with numerous spines in double rows; spicules in outer upper row on hind tibiae denser than in rest of rows. *Hypopygium* of ♂ (text-fig. 278) with a patch of hair just before middle dorsally on each basal part; beaked apical joints with the beaked part curved upwardly and slightly outwards (more or less U-shaped); aedeagal process scoop-like or cowl-shaped, shortish; middle part of aedeagal apparatus rather large, inflated; lateral struts shortish, scoop-like; basal or posterior strut shaped as shown in side view (left-hand figure).

In the Transvaal and South African Museums and in the Commonwealth Institute.

Length of body: about $9\frac{1}{2}$ –18 mm.

Length of wing: about $9\frac{1}{2}$ –18 mm.

Locality: Zululand, North-east Transvaal, Southern Rhodesia, Bechuanaland, South-West Africa and, according to other records, Nyasaland and Uganda.

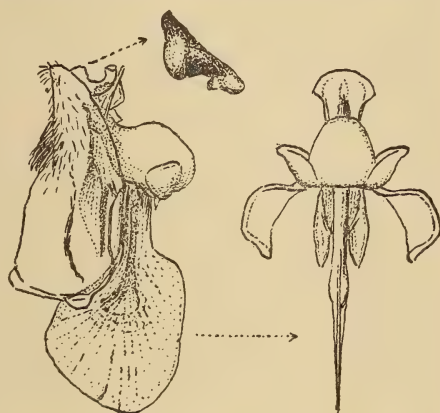
The species *Anthrax rufa* of Wiedemann (p. 291, *Aussereurop. Zweifl. Ins.*, i, 1828) which Ricardo thought was allied to this species is not a *Ligyra* (*Hyperalonia olim*) at all, but probably a species of *Lomatia* as was maintained by Bezzi in 1921.

Ligyra paris (Bezz.)

(Bezzi, p. 165, *Ann. S. Afr. Mus.*, xviii, 1921 (as *Hyperalonia*); Bezzi, p. 338, *Ins. Dipt. Voyage d. Ch. Alluaud et R. Jeannel en Afr. Or.*, 1911–1912, 1923; Bezzi, pp. 362 and 366, *The Bombyliidae of the Ethiopian Region*, 1924; Paramonow, p. 59, *Proc. Roy. Ent. Soc. Lond.*, xxiv, 1955.)

(Syn. = *vittata* Bezzi, in part, nec Ricardo, p. 165, *Ann. S. Afr. Mus.*, xviii, 1921.)

A series of ♂♂ and ♀♀ in the collections before me differ in certain respects from *vittata* and agree more with the brief descriptive references given by Bezzi for *paris* (Bezz.). This latter species was supposed to have been described by



TEXT-FIG. 278. Side view of hypopygium of ♂ *Ligyra vittata* (Ric.), dorsal view of enlarged beaked apical joint and ventral view of the detached aedeagal apparatus of the same species.

Bezzi in a memoir on the Bombyliidae in the Budapest Museum. This memoir was apparently never published, so this species and several others belonging to other genera, to which Bezzi alludes in his revision, have been incorporated in his revision without having been properly described. It is therefore very difficult to establish the true identity of this species without examining the original specimens, more so on account of the fact that it very closely resembles the *vittata* of Ricardo. It however agrees more with the brief descriptive references made by Bezzi in 1921 and 1924 (loc. cit.). Moreover the ♂-specimen from Ibadan in Southern Nigeria to which Bezzi alludes in his revision (loc. cit., 1924) is among the material before me and it agrees specifically with the rest of the specimens I am referring to this species. Paramonow's redescription of the species is not complete enough to obviate confusion with Ricardo's *vittata*. The single ♂-specimen which Bezzi referred to *vittata* (Ric.) in 1921 (loc. cit.) also belongs to this species and not to *vittata*.

The species *paris* differs from *vittata* in the following respects:

Body with the occiput of head medially above with a large, but variable postvertical black spot; hind margin of occiput behind eyes black and head below medially usually also black; pleurae not entirely or mainly yellowish, but with the mesopleuron, metapleural and sternal parts black, only the middle part sometimes yellowish to a variable extent; basal part of thorax which is yellowish in some ♀♀ of *vittata* is constantly black. *Vestiture* with the hairs on sides of face distinctly more extensively black, only those on extreme sides and along buccal margin being yellowish reddish; collar, hairs in upper part of mesopleural tuft and especially in propleural tuft and middle parts of pleurae, sides of abdomen, especially sides of tergite 2, deeper yellowish, yellowish reddish or fulvous reddish; vestiture on body below and venter more yellowish than whitish; tuft of fine hair-like scales in front of wing-bases fulvous reddish; scaling on abdomen above tending to be deeper yellowish or more rufous-tinted and with distinct and often numerous black scales discally on black parts of abdomen above. *Wings* with the infuscation on the whole darker, more and deeper reddish brownish, more bronzy, shining or slightly violaceous, more uniform, the middle of cells and apex not or with less clearer yellowish; darker spot-like infuscations on cross veins thus less contrastingly visible. *Antennae* with joint 3 tending to be longer than joints 1 and 2 combined, especially in ♀, its style relative to length of joint slightly shorter than in *vittata*, especially in ♀. *Hypopygium* of ♂ differs from that of *vittata* (cf. text-fig. 278) in not having a patch of markedly dense hairs on basal parts, in having the upwardly curved beak of beaked apical joints broader, less deeply and less sharply curved upwards and with a more pointed apex; aedeagal process narrower apically, its apical margin emarginate, not arcuately rounded and scoop-like as in *vittata*; middle part of aedeagal apparatus smaller, less inflated; basal strut longer, its broadened part narrower, more narrowly racket-shaped.

In the British, South African and Transvaal Museums and in the Agricultural Department of Southern Rhodesia.

Length of body: about 12–17 mm.

Length of wing: about 12–17 mm.

Locality: North-eastern Transvaal, Southern Rhodesia, East and Central Africa and also Southern Nigeria.

The ♂-specimen from Southern Nigeria is a slight variety.

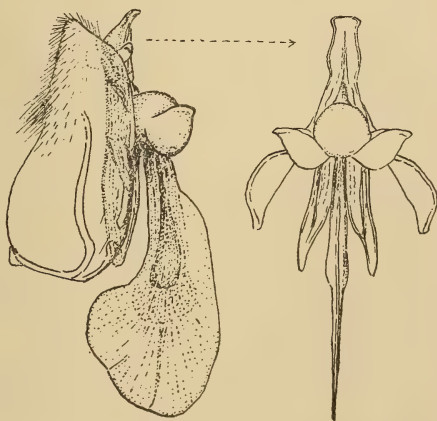
Ligyra coleoprata (Bezz.)

(Bezzi, p. 164 and pl. ii, fig. 32, *Ann. S. Afr. Mus.*, xviii, 1921 (as *Hyperalonia*); Bezzi, p. 361, *The Bombyliidae of the Ethiopian Region*, 1924.)

This Natal species resembles both *vittata* and *paris*, but more especially the latter, very closely. It may almost be considered as an extreme form of the latter. It however distinctly differs from both in the following respects:

Body with the greater part or entire occipital part and vertex or even basal third or half of frons black, not entirely yellowish or reddish as in *vittata* or with only a large postvertical black spot as in *paris*, only a narrowish yellowish line behind eye-margins being present in lower half; base of scutellum more broadly black; entire pleurae dark or black; abdomen with the black above very much broader, even in ♂, leaving only the narrowish sides reddish and in ♀ occupying most of dorsum, leaving only extreme sides of tergites 2 and 3 reddish, with the hind margins of tergites only narrowly reddish posteriorly; venter in ♀ tending to be darker, only hind margins of sternites being reddish; legs also reddish.

Vestiture with the hairs on sides of face even more extensively black than in *paris*, only some on extreme sides reddish golden; scaling down middle of head anteriorly sometimes dark or black and also with dark or black ones on occiput; collar, hairs anteriorly on humeral tubercle, upper part of mesopleural tuft, propleural tuft, on pteropleuron, in metapleural tuft, sides of tergite 1 and on more than basal halves of 2 and 3 very deep fulvous reddish, deep orange reddish to fiery reddish; lower and hinder parts of mesopleuron and sternopleuron with black hairs, and hinder part of collar with more black hairs; hairs on venter even deeper reddish fulvous than in *paris*; scaling on thorax and base of scutellum mostly black, not yellowish ochreous or rufous, and black



TEXT-FIG. 279. Side view of hypopygium of ♂ *Ligyra coleoprata* (Bezz.) and ventral view of the detached aedeagal apparatus of the same species.

scaling on abdomen above more extensive than in *paris*, leaving only those on reddish parts on sides reddish yellowish. *Wings* distinctly darker bronzy brownish than even in *paris*, the infuscation uniform, with more violaceous reflections, with the darker spot-like infuscations on cross veins very feebly indicated, scarcely evident (not so evident as shown in Bezzi's illustration of wing in plate ii, fig. 32, loc. cit., and which I think is that of *vittata* and not *coleoptrata*). *Hypopygium* of ♂ as shown in text-fig. 279, with the basal parts resembling those of *paris* but with a dense tuft dorsally as in *vittata*; aedeagal process narrower and shaped differently from that of *vittata* (cf. text-fig. 278) and even that of *paris*, from which it differs in having its apical margin less emarginate.

In the Natal, Durban and South African Museums (original type in the South African Museum).

Length of body: about $11\frac{1}{2}$ –16 mm.

Length of wing: about 12–16 mm.

Locality: Natal.

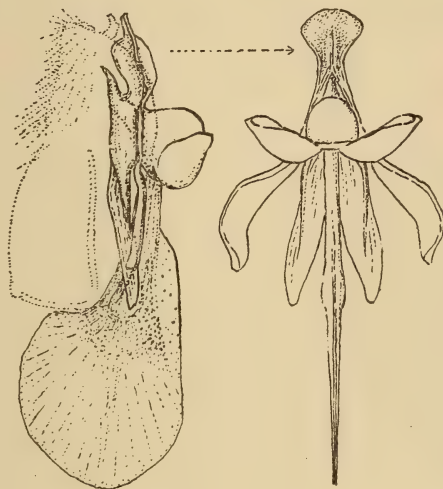
Ligyra nigripennis (Lw.)

(Loew, p. 659, *Bericht d. Königl. Preuss. Akad. d. Wissensch.*, 1852 (as *Exoprosopa*); Loew, p. 10, *Peter's Reise nach Mossambique*, 1862; Bezzi, p. 653, *Trans. Ent. Soc. Lond.*, 1911 (1912) (as *Hyperalonia*); Bezzi, p. 338, *Ins. Dipt., Voyage d. Ch. Alluaud et R. Jeannel en Afr. Or.*, 1911–1912, 1923; Bezzi, pp. 361 and 365, *The Bombyliidae of the Ethiopian Region*, 1924.)

This striking species combines certain characters of all the three preceding species. It is however characterized as follows:

Body, including head and antennae, mainly black; anterior half or sometimes more than front half of frons and the entire face reddish or yellowish reddish; postalar calli, apical three-quarters of scutellum, to a variable extent sides of abdomen in ♂, extreme sides of tergite 2 or to an obscure extent extreme sides of tergites in ♀, narrow hind margins of tergites, broad hind margins of sternites or even greater part of venter in ♂ and hind margins of sternites in ♀ yellowish reddish or reddish; legs pale ochreous yellowish. *Vestiture* with the hairs on head in front mainly black, a few intermixed ones on sides of face gleaming golden; scaling on head in front yellowish, those on sides of face paler, gleaming more brassy or sometimes more whitish; scaling on upper half of occiput brilliantly golden; that behind eyes in lower half silvery whitish; hairs in collar, upper part of mesopleural tuft, upper part of metapleural tuft and in upper parts on sides of tergites 1–3 yellow; hairs on rest of pleurae and sides below of abdomen above and on venter white or whitish, more so than in *vittata*, and without any black ones; hairs on thorax above, prealar, postalar and scutellar bristles, bristly hairs on coxae, hairs on abdomen above, on sides of tergites 4 to apex and intermixed with golden ones on last sternite black;

scaling on thorax above composed of golden and black ones, that at base of thorax and hinder border of scutellum brilliantly golden, the base of scutellum however with black ones; tuft of fine hair-like scales in front of wing-bases white; scaling on abdomen above densely and brilliantly golden, especially on sides and on last two tergites and across hind margins, more densely and more on sides and apical part in ♂; discal parts of abdomen with black scales, becoming narrower posteriorly and, in ♂, ceasing on middle part of tergite 5; scaling on venter white or whitish; scaling on legs mostly yellowish, with some black ones along anterior faces to a variable extent. *Wings* duller dark purplish brownish or dark smoky brownish than in *coleoptrata*, and with slightly less violaceous reflections, becoming slightly paler apically; darker spot-like infuscations on cross veins feeble, still less evident than in *coleoptrata*; apical cross vein of discoidal cell relatively shorter than in the three preceding forms, the base of second posterior cell thus not so conspicuously broader than its apex; vein between second and third posterior cells distinctly less sinuous. *Head* with the face relatively shorter, less conical than in preceding species; antennal joint 3 and its style like that of *paris* and *coleoptrata*. *Hypopygium* of ♂ (text-fig. 280) differs from that of *coleoptrata* and *paris* in having the apical part of aedeagal process broadened (figure on right) as in *vittata* (cf. text-fig. 278, right), but sides more rounded; aedeagus (seen projecting in left-hand figure) distinctly longer than in *vittata*.



TEXT-FIG. 280. Side and ventral views of aedeagal apparatus of hypopygium of ♂ *Ligyra nigripennis* (Lw.). (Position of shell-like basal parts enclosing aedeagal apparatus shown in stippled outline.)

In the Durban, Natal, Rhodesian, South African and Transvaal Museums.

Length of body: about 10–15 mm.

Length of wing: about 11–16 mm.

Locality: Natal, Portuguese East Africa and East Africa.

Ligyra sisyphus-group

Ligyra sisyphus (Fabr.)

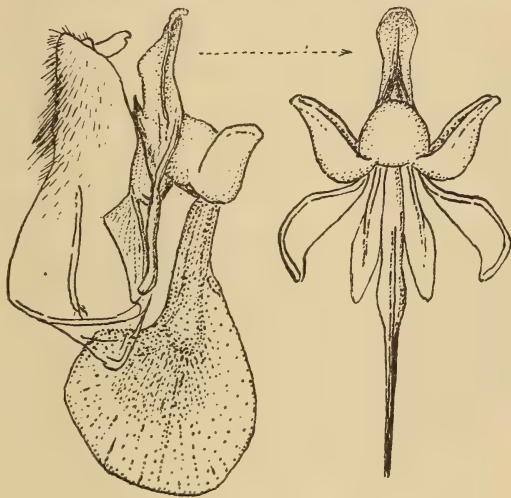
(Fabricius, *Systema Antliat.*, 125, 33, 1805 (as *Anthrax*); Wiedemann, p. 121, *Dipt. Exot.*, 1821 (as *Anthrax*); Wiedemann, p. 258, *Aussereurop. Zweifl. Ins.*, i, 1838 (as *Anthrax*); Bezzi, pp. 362 and

368, *The Bombyliidae of the Ethiopian Region*, 1924 (as *Hyperalonia*); Paramonow, p. 59, *Proc. Roy. Ent. Soc. Lond.*, xxiv, 1955.)

Two ♂-specimens from Central Africa in the collections before me, which Mr. F. J. Francois kindly presented to the South African Museum, agree in most respects with the short description of *Anthrax sisypheus* Fabr. from Guinea given by Wiedemann and briefly summarized by Bezzi in 1924. Provisionally I am referring them to the latter species and though so far not recorded from Southern Africa, I am nevertheless including it in this revision because some other Central and East African species of Bombyliids have been found to extend much farther southwards. These ♂♂ are characterized as follows:

Body mainly black; entire frons and face also black, only extreme lower part of face and buccal rim yellowish; the oblique streak below each antenna reddish brownish; apical two-thirds of scutellum, to a certain extent postalar calli and extreme sides of tergites 2 and 3 (or 4) to a variable extent reddish brownish or castaneous; legs very dark blackish brown or black. *Vestiture* with the hairs on frons and down middle of face to a variable extent, small tuft at apex of face and hairs on antennae below black; hairs on greater part of face however pale sericeous yellowish to whitish; hairs on disc of thorax, on hinder part of humeral tubercle, notopleural part, prealar, postalar and scutellar bristles, hairs on scutellum, discally across hinder half and hind margins of tergites 2-7, some bristly (longer) hairs on each side (not extreme sides) of 3 (or 4)-7, bristly hairs near apex of front coxae and on rest of coxae black; rest of hair on body pale, more yellowish in collar, to a certain extent in upper part of mesopleural tuft and densely on sides of abdomen from tergite 2, but more whitish to white on lower parts of pleurae, in metapleural tuft, plumula, sides of tergite 1 and on venter, the hairs on sides of abdomen however sometimes also more whitish than yellowish from tergite 3 posteriorly; scaling on head in front sparse, more greyish yellowish in basal part of frons, very dense and shining sericeous whitish to almost silvery whitish on front half of frons and on face; scaling on sides behind eyes dull whitish; hair-like scaling on thorax above dull to buff yellowish, slightly denser, longer and paler on sides; scaling on disc of scutellum also with much black scaling; hair-like scaling on pleurae and coxae dense and whitish; scaling on abdomen above dense, composed of black, pale ochreous yellowish or creamy-yellowish and whitish or white ones; the pale ones arranged in more or less regular broadish transverse bands across bases of tergites 2 and 3, across apical halves or middle of 4 and 5 (or 6) (excepting along middle discally) and across entire 6 and 7, that on 7 and sometimes on sides of other pale bands more whitish or white; the black ones across rest of tergal surfaces (not occupied by pale ones), but more broadly along middle of tergites 3-6 and also across middle part of hind margin of last tergite; scaling on venter dense, mainly whitish to white, but with dark ones on each side across more or less basal halves of sternites 4-7; scaling on legs dense, mainly dark or black, but with whitish or dirty whitish ones on lower and hinder parts of femora. *Wings*

glassy hyaline; base, costal cell (to end of false vein) and more or less basal half of first basal cell opaquely yellowish, without any visible spot-like infuscations on cross veins in basal half; veins dark brown; enclosed supernumerary submarginal cell only a little broader apically than basally, its apical vein oblique; middle cross vein just before middle of discoidal cell; the latter subacute or more subtruncate apically, not produced, its apical vein straight or almost so; squamae pallid or whitish, white-fringed; halteres yellowish brown or brownish, with almost white knobs. *Head* with antennal joint 3 elongate-conical, gradually narrowed from broad base, its style less than half, sometimes only about a third, length of joint; face shortish, distinctly much less than half length of frons (from between antennae to front ocellus). *Legs* without any distinct spicules on front tibiae; longish scales on hind tibiae very much shorter than spicules. *Hypopygium* of ♂ as shown in text-fig. 281, with the beaked apical joints not so curved upwards as in *vittata*, *coleoptrata* and *nigripennis* (cf. text-figs. 278–80); lateral struts strongly developed and broadish and ventral aedeagal process as in figures.



TEXT-FIG. 281. Side view of hypopygium of ♂ *Ligyra sisyphus* (Fabr.) and ventral view of aedeagal apparatus of the same species.

Length of body (of specimens): about $11\frac{1}{2}$ –13 mm.

Length of wing (of specimens): about $11\frac{1}{2}$ –14 mm.

Locality: Belgian Congo (Urundi Territory): Rumonge (Francois, 25 May 1949) and Rutana (Francois, 22 May 1950) and, apart from Tropical West Africa, also Abyssinia, Kenya and Uganda (*vide* Bezzi).

Ligyra atricosta (Bezz.)

(Bezzi, p. 366 and fig. 40, *The Bombyliidae of the Ethiopian Region*, 1924 (as *Hyperalonia*); Hesse, p. 33, *Mem. Mus. Dr. Alvaro de Castro*, i, 1950 (as *Hyperalonia*).)

(Syn. = *sisyphus* Bezzi, nec Fabricius, p. 654, *Trans. Ent. Soc. Lond.*, 1911 (1912); Bezzi, p. 366, *The Bombyliidae of the Ethiopian Region*, 1924.)

A ♀-specimen of this species in the collections before me agrees very well with Bezzi's description of specimens from Nyasaland. It resembles *sisyphus*, but differs in the following respects:

Body with the sides of face entirely or more extensively yellowish red. *Vestiture* with all the hairs on face and rest of head in front black; scaling on frons in front and face slightly less dense and, though gleaming, distinctly more yellowish, appearing dark on face above in certain lights, not silvery whitish; hairs on middle part of mesopleuron and more numerous ones on coxae, especially front ones, and all the hairs on sides of tergites 3-7 black, not pale as in *sisyphus*, and even most of hairs discally on these tergites also black; scaling on abdomen above similar and similarly arranged, but pale band across base of tergite 2 distinctly narrower, the black scaling on this tergite being more extensive, and with more conspicuous white scaling on 6 and 7, contrasting much with the pale yellowish or cream-coloured ones in the other pale bands; scaling on venter similar to that of *sisyphus*; scaling on legs entirely black, without conspicuous pale ones on lower faces of femora. *Wings* with the base, entire costal cell, entire first basal cell (♀), and to a fainter extent base and along first vein in marginal cell (♀) and even extreme base of second basal cell (♀) more darkly infuscated, more blackish brown; spot-like infusions on cross veins in basal half of wings distinctly evident (absent in *sisyphus*); knobs of halteres darker or very dark above. *Antennae* with joint 3 relatively much shorter, more conical, its style relative to joint much longer, nearly or quite half length of latter. *Legs* with distinct and well-developed spicules on front tibiae.

Length of body: about 10 mm.

Length of wing: about 11 mm.

Locality: Portuguese East Africa: Manhica (Ferreira, 12 April 1949).

Ligyra thyridophora (Bezz.)

(Bezzi, p. 653 and pl. L, fig. 26, *Trans. Ent. Soc. Lond.*, 1911 (1912) (as *Hyperalonia*); Bezzi, pp. 362 and 372, fig. 42, *The Bombyliidae of the Ethiopian Region*, 1924; Paramonow, p. 58, *Proc. Roy. Ent. Soc. Lond.*, xxiv, 1955.)

A large species characterized as follows:

Body mainly black; front two-thirds of frons (excepting darkish anterior middle part), first antennal joints, sides of face and buccal rim yellowish; postalar calli, greater part of scutellum, sides of tergites 2 and 3 (♂), hind margins of tergites in both sexes, more broadly posteriorly in ♂, to a variable extent sutural parts of pleurae and hind margins of sternites, or in ♂ even greater part of base of venter, reddish brownish; legs yellowish brownish or reddish brownish, appearing black, due to black scaling. *Vestiture* with the hairs on head in front mostly black, those below antennae and on sides of face sericeous yellowish; scaling on head in front gleaming greyish whitish, more whitish on sides of face; scaling behind eyes white; fine hairs across margin of occipital cavity sericeous whitish; collar above, upper anterior part of meso-

pleural tuft, metapleural tuft and hairs densely on sides of tergites 1 to base of 6 pale yellowish, becoming more whitish on lower and middle parts of pleurae and on extreme sides of tergite 1; hairs on thorax above, notopleural bristly hairs, prealar, postalar and scutellar bristles, hairs on abdomen above (except tergite 1 and basal half of 2), those on sides of last two tergites and intermixed ones on last sternite black; hairs on venter gleaming greyish silvery, especially in three narrow discal streaks and along sides; scaling on abdomen above composed of whitish, greyish yellowish and dark ones, the whitish ones arranged across basal halves of tergites 3 and 4 (denser on sides), on extreme sides of 5 and across entire 6 and 7; the greyish yellowish ones across hind margins of 4 and 5, discally on 5 and to a certain extent narrowly across base of 2; rest of scaling above dark or black; scaling on venter mostly whitish or yellowish white. *Wings* with a distinct pattern, consisting of a dark brownish or blackish brown infuscation, occupying the base and greater part up to apex of false vein in costal cell and then irregularly across to a point a little beyond middle of vein between second and third posterior cells and reaching hind margin at apex of fourth posterior cell; this infuscation however more or less divided into two by a broad clear indentation extending from and occupying apical two-thirds or more of axillary lobe and broad middle part of anal cell and as a large clear spot in second basal cell, not continuous with former, but separated by a fuscous border along fifth vein; apical margin of infuscation indented in third posterior cell and with the middle parts of discoidal and fourth posterior cells as well as base of marginal cell slightly less infuscated; apical parts of wings hyaline like clear basal indentation; enclosed fourth submarginal cell broader apically than basally; discoidal cell only a little depressed medially, acute apically, its apical vein S-curved; middle cross vein at about or near middle of discoidal cell; first posterior cell broadly open apically; second posterior cell broader apically than basally, vein between it and third posterior cell feebly sinuous, almost straight; squamae yellowish brownish, whitish-fringed; halteres pale yellowish brownish, with whitish knobs. *Head* with the face rather bluntly convex, broadish; antennal joint 3 elongate-conical, very much longer than 1 and 2 combined, gradually tapering, its style stoutish, a little longer than a third length of joint. *Legs* with some small spicules on front tibiae; middle and hind femora with numerous spines below, those on hind ones more or less in two rows; spicules and to a certain extent scales in outer row on hind tibiae denser than in rest of rows; basal tooth of claws small, blunt.

In the South African and Transvaal Museums.

Length of body: about $17\frac{1}{2}$ –18 mm.

Length of wing: about $19\frac{1}{2}$ –20 mm.

Locality: Southern Rhodesia and, according to Bezzi, Portuguese East Africa and Nyasaland.

Ligyra venus-group*Ligyra enderleini* (Par.)

(Paramonow, p. 186, *Mem. Acad. Sc. de l'Ukraine, Phys. Math.*, 13, 1929 (as *Hyperalonia*); Paramonow, p. 222, *Proc. Roy. Ent. Soc. Lond.*, (B), 22, 1953.)

(Syn. = *venus* Bezzi, nec Karsch, p. 339, *Ins. Dipt. Voyage d. Ch. Alluaud et R. Jeannel en Afr. Or.*, 1911-1912, 1923 (as *Hyperalonia*).)

A large tropical species with a characteristic wing-pattern and patches of golden scaling on abdomen. Its chief characters are:

Body mostly black; frons and extreme lateral parts of face a little below antennae reddish, but with dark infusions on frons medially in front and basally; buccal rim yellowish; postalar calli obscurely, greater discal part of scutellum and sides of tergites 2 and 3 reddish to a variable extent; legs very dark blackish brown, almost black, black-scaled. *Vestiture* with the hairs on head in front and on antennae black, those on face, especially sides, sericeous whitish; scales on frons sparse, silvery, those on sides of face broadish, lanceolate, very dense, gleaming silvery white and those behind eyes also dense silvery whitish; hairs in upper part of collar and especially anterior upper part of mesopleural tuft, and metapleural tuft contrastingly bright orange or orange reddish; rest of hairs and dense scales on pleurae and coxae gleaming silvery whitish, but with some black hairs on lower anterior part of mesopleuron; fine hairs on thorax and scutellum above, bristly hairs on hind part of humeral tubercle and along sides, prealar, postalar and scutellar bristles black; hairs on sides of tergites 1 to base of 4 whitish, the rest of hairs on sides and also below on inflexed sides of 3 and those on hinder part of abdomen above as well as those on last two sternites in ♀ black; rest of hairs and scaling on venter whitish, the latter more silvery; scaling on thorax and scutellum above mostly fine and black, those on sides of thorax hair-like, whitish; scaling on abdomen composed of slender, elongate, linear, brilliantly brassy or golden scales and shorter black ones, the golden ones arranged as a broad patch on sides of tergite 2 and a small patch on sides of 3 (the two together forming a triangle of which the broad base is across base of 2), the individual scales in them directed obliquely towards sides, and with dense golden scaling also on tergites 6 and 7; rest of abdomen above, including hind margin of tergite 1, with black scales. *Wings* markedly elongate, glassy hyaline, but with the following parts dark brownish in ♀; the base, fore border, including first basal and marginal cells up to end of costal cell, and from this fore border two cross bands, the first extending from first basal cell to apex of anal cell and occupying the basal third of discoidal cell, apical part of second basal cell, base of fourth posterior cell, apical part of anal cell and to a variable extent extreme apex of axillary lobe; second cross band to hind margin slightly broader, broadly occupying more than apical half of enclosed submarginal cell, extreme base of first apical cell, basal diagonal half of enclosed fourth submarginal cell, slightly less than apical half of first posterior cell,

entire second posterior cell and to a variable extent extreme apical part of third posterior cell; discoidal cell elongate, its upper and lower veins gently curved outwards, its apical vein short, feebly S-curved; middle cross vein at about a third length of discoidal cell; second posterior cell narrowish, the vein between it and third posterior cell sinuous, the cell itself considerably narrower apically than third posterior cell which is as broad as or broader apically than fourth posterior cell; axillary lobe elongate; squamae dark brownish, orange-fringed; halteres brownish. *Legs* with spicules on front tibiae; front tarsi in ♀ rather densely hairy; middle and hind femora with numerous spines below and also densely above on hind ones.

From a single ♀ in the South African Museum.

Length of body: about 20 mm.

Length of wing: about 26 mm.

Locality: Beira in East Africa and, according to Paramonow and Bezzi, also in Tanganyika, Zanzibar, Mombasa, Nyasaland and Kenya in East Africa.

There is no doubt that Bezzi confused this species with the *venus* of Karsch, a species which according to Paramonow differs from this species in not having any golden scales on each side of tergite 2.

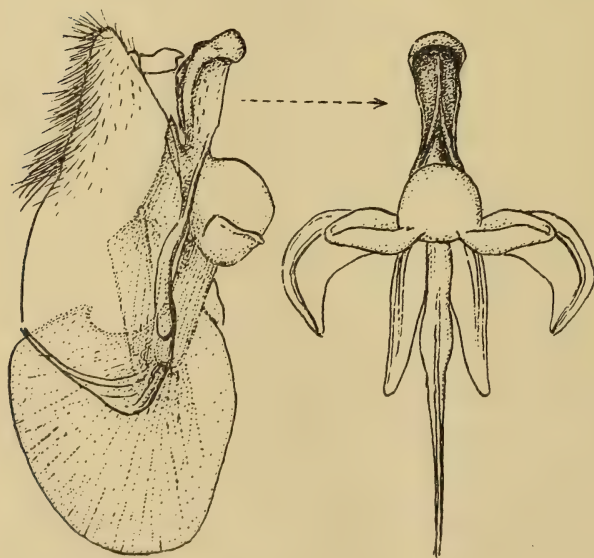
Ligyra mars (Bezz.)

(Bezzi, pp. 363 and 373, and fig. 43, *The Bombyliidae of the Ethiopian Region*, 1924 (as *Hyperalonia*); Paramonow, p. 187, *Mem. Acad. Sc. de l'Ukraine, Phys. Math.*, 13, 1929 (as *Hyperalonia*); Paramonow, p. 220, *Proc. Roy. Ent. Soc. Lond.*, (B), 22, 1953.)

Another striking species, with golden scales on abdomen, an oval window in darkly infuscated wings and feathered hind legs, and which cannot be confused with any other African species of *Ligyra*. It is characterized as follows:

Body predominantly black; head, with the exception of dark brown or purplish brown eyes, dark or black third antennal joints and dark medial post-buccal part, dark red to orange red; postalar calli obscurely, greater discal part of scutellum, an obscure spot on sides apically of tergite 1 in ♂ and sometimes sutural parts of pleurae dark reddish or reddish brownish; legs very dark blackish red, appearing black due to black scaling. *Vestiture* with the hairs on head in front black, only some on extreme sides of face below gleaming sericeous yellowish; scaling on head in front sparse, dark brownish or black, shining, those on sides of face broader, longer, slightly denser, gleaming silvery whitish, and those behind eyes also silvery whitish; hairs in collar above and in upper part of mesopleural tuft conspicuously bright carmine red; some hairs anteriorly in propleural tuft whitish; rest of hairs, bristly hairs and bristles on body above and below, including plumula, entirely black, those on middle of pleurae as well as the scaling there however tinted slightly more velvety brownish, the scales even shining more brownish; scaling on thorax and scutellum above small,

having a granular appearance, entirely black; scaling on abdomen above and below predominantly black, only a subtriangular patch on sides of tergite 2 and a medial discal patch on tergites 6 and 7 brilliantly golden, the scales in these two patches being more elongate. *Wings* long, relatively narrow, uniformly black, excepting for a conspicuous, oval, hyaline window, occupying entire apical two-thirds or slightly more of discoidal cell and extending slightly over apical half of discoidal cell and also into base of third posterior cell, and a clear hyaline apical part beyond enclosed quadrangular submarginal cell, continuous along hind margin as a narrow clear border up to apex of anal cell; discoidal cell elongate, its upper and lower veins gently curved outwards, its apical vein short, straight and oblique; middle cross vein much before middle of discoidal cell; second posterior cell considerably narrower apically than third, the vein between them S-curved; squamae black, black-fringed; halteres very dark brownish. *Head* with the frontal depression distinct, foveate; face bluntly convex, rounded, broadish; antennal joint 3 elongate-conical distinctly longer than 1 and 2 combined, its style slightly shorter than half length of joint; proboscis stout and short. *Legs* with spicules on front tibiae; front tarsi rather densely hairy; all the femora with spines laterally below, the middle and hind ones with numerous spines in two rows; those on hind ones strongly developed and also present apically above; hind legs feathery in appearance, with very dense, long, sharply pointed, lanceolate scales, arranged above and below apical half of femora, even more densely on tibiae, upper face of first tarsal joint and



TEXT-FIG. 282. Side view of hypopygium of ♂ *Ligyra mars* (Bezz.) and ventral view of detached aedeagal apparatus.

to a lesser extent on following two tarsal joints; hind tibiae themselves slightly thickened, slightly flattened on sides and slightly grooved along hinder face; basal tooth of claws short, blunt. *Hypopygium* of ♂ (text-fig. 282), with the basal parts rather broad and well developed, without a chitinous carinate ridge on each side internally as in *vittata*, *coleoptrata*, etc.; beaked apical joints, not or scarcely curved upwards, more like those of *sisyphus*, not *U-*

shaped as in the *nigripennis*-section; ventral aedeagal process narrowish, shaped as shown in figures; lateral struts relatively less strongly developed than in *sisyphus*.

In the South African and Transvaal Museums.

Length of body: about 17–19½ mm.

Length of wing: about 21–23 mm.

Locality: Natal, Portuguese East Africa, Southern Rhodesia and Nyasaland.

Gen. *Isotamia* Bezz.

(Bezzi, pp. 606 and 627, *Trans. Ent. Soc. Lond.*, 1911; Bezzi, p. 27, *The Bombyliidae of the Ethiopian Region*, 1924.)

(Syn. = *Francoisia* Hesse, p. 1, *Bull. Inst. Roy. Sc. Nat. Belg.*, xxviii, No. 42, 1952, established by Francois, p. 180, *Bull. et Ann. Soc. Entom. Belg.*, 90, vii–viii, 1954.)

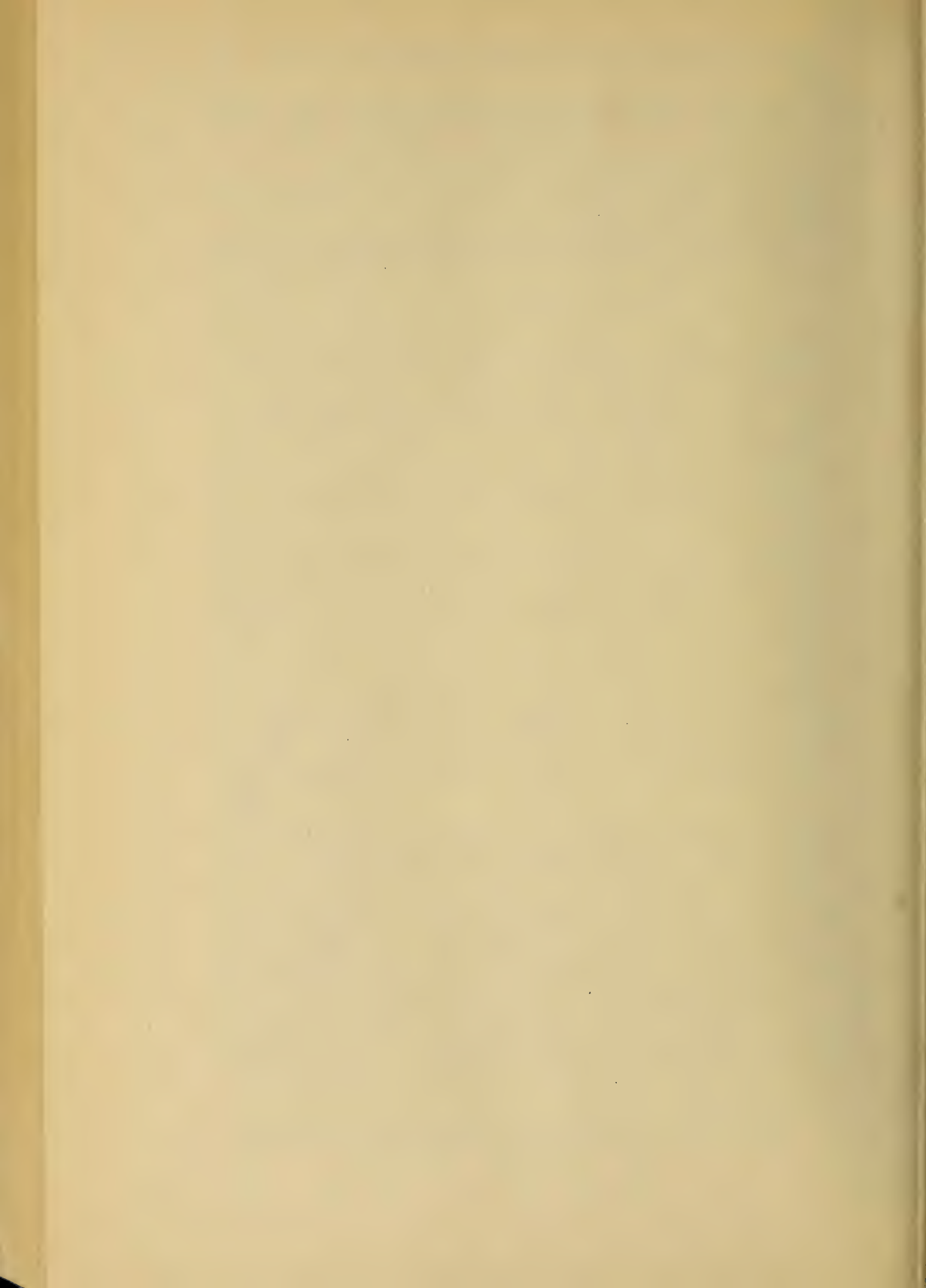
(Syn. = *Ogilviella* Paramonow, p. 26, *Proc. Roy. Ent. Soc. Lond.*, (ser. B), 23, 1954, established by Francois, p. 180, loc. cit., 1954.)

This genus which Bezzi described from North Nyasaland in 1911 does not occur in Southern Africa, but has been included in my key to the Bombyliid genera of Southern Africa because in 1952 (loc. cit.) I did not recognize it and erroneously redescribed it from the Belgian Congo as a new genus *Francoisia*. Subsequently Paramonow described the same genus (also from the Belgian Congo) as still another new genus *Ogilviella* (1954, loc. cit.). The synonymy of both these new genera was established by M. Francois in 1954 (loc. cit.) who compared the types with the original type of *Isotamia* in the British Museum.

Though relating it to *Exoprosopa* in his original description and thus suggesting its inclusion in the *Exoprosopinae*, Bezzi nevertheless subsequently placed it in the subfamily *Lomatiinae* (pp. 15 and 27, *The Bombyliidae of the Ethiopian Region*, 1924).

There is however no doubt that this genus belongs to the *Exoprosopinae* and is related to *Exoprosopa*, from which it differs in the relatively longer proboscis; much shorter palps; relatively longer buccal cavity; dorsal groove-like depression on face; more indistinct genal grooves; more reduced axillary lobe and alula; origin of the second vein which is distinctly or much before middle cross vein; relatively more extensively bare pleurae; relatively short thorax; less reduced front claws; and the stiff, stoutish, blunted and brush-like hairs on upper parts of pleurae, prosternal part and on sides at base of abdomen.

The only known species *daveyi* Bezz. (described as *Francoisia sulcifacies* by me and as *Ogilviella tridentata* by Paramonow) is according to Francois variable in the colour of its collar-hairs and in certain cellular and venational characters.



APPENDIX TO PART I, VOL. XXXIV, 1938

Since the publication of Part I so many new forms belonging to the First Division of the Bombyliidae have been acquired that it is impossible to describe them all here or even to give supplementary comments on species already described. This has to be reserved for some future publication. Two new genera of which one has already been mentioned in a footnote in the key to the genera in Part I and incorporated in the key to all the genera in Part II (p. 15) as well as some synonymic notes and additional notes to some genera and species, are however of sufficient taxonomic importance to merit description and comment here.

A few misleading errors in Part I have also to be corrected and these are listed below.

CORRECTIONS IN REGARD TO THE ALLOCATION OF TYPES

The type of *Systoechus acridophagus*, p. 474, *Ann. S. Afr. Mus.*, xxxiv, 1938, is in the South African Museum and not in the University of Stellenbosch as stated.

The allotypes of the following species are in the Transvaal Museum and not in the South African Museum as stated:

<i>Anastoechus fuscianulatus</i> ,	p. 380, <i>Ann. S. Afr. Mus.</i> , xxxiv, 1938.
<i>Systoechus bechuanus</i> ,	p. 387, " "
<i>Systoechus kalaharicus</i> ,	p. 392, " "
<i>Systoechus aberrans</i> ,	p. 395, " "
<i>Systoechus neglectus</i> ,	p. 404, " "
<i>Systoechus eremophilus</i> ,	p. 492, " "
<i>Eurycarenum cingulatus</i> ,	p. 520, " "
<i>Chasmoneura cinereotincta</i> ,	p. 599, " "
<i>Gonarthrus kalaharicus</i> ,	p. 643, " "
<i>Gonarthrus kalaharicus</i> var. <i>venustus</i> ,	p. 645, " "
<i>Gonarthrus citrinus</i> ,	p. 652, " "
<i>Corsomyza tricellulata</i> ,	p. 755, " "
<i>Hyperusia transvaalensis</i> ,	p. 772, " "
<i>Geron transvaalensis</i> ,	p. 891, " "
<i>Geron nomadicus</i> var. <i>breyeri</i> ,	p. 914, " "

ERRATA

Part I, p. 29, in second line, 'with' should read 'without'.

„ p. 30, in second last line, 'broaded' should read 'broader'.

„ p. 63, in line 12 from top, 'tegrites' should read 'tergites'.

- Part I, p. 166, in line 20 from top, 'second' should read 'third'.
 „ p. 672, in tenth line from top, '*Therevidae*' should read '*Therevidae*'.
 „ p. 721, at end of top couplet, '*hirtipes* Bezz. nec Wied.' should read '*hirtipes* Bezz. nec Macq.'
 „ p. 868, in fourth line from top, '*dicroma* Bezz. (nec Macq.)' should read '*dichromus* Bezz. (nec Bigot)'.
 „ p. 918, second line in second paragraph, '*dichroma*' should read '*dichromus*'.
 „ p. 958, last line, '*bezzii*' should read '*bezzii*'.
 „ p. 965, in legend under figure, '*bezzii*' should read '*bezzii*'.
 „ p. 1009, in sixth line from bottom, '*Parathosea*' should read '*Parasa*'.

SYNONYMICAL NOTE ON THE SOUTH AFRICAN GENUS *Cheilohadrus* HESSE
 AND THE PALAEARCTIC GENUS *Prorachthes* LW.

(Part I, p. 674, *Ann. S. Afr. Mus.*, xxxiv, 1938)

In a private letter to me Dr. Paramonow very kindly drew my attention to the fact that my new South African genus *Cheilohadrus* appears to be synonymous with the Palaearctic genus *Prorachthes* of Loew. After comparing Loew's original description of the latter genus (p. 381, *Berl. Ent. Zeit.*, xii, 1868) and the supplementary descriptions of it given by Paramonow (p. 104, *Acad. d. Sc. d. l'Ukraine*, No. 9 (*Trav. Mus. Zool. Kiev*, No. 11), 1931) and Engel (p. 48, *Die Fliegen d. Pal. Reg.*, lief. 65, 1932) with my type-material it is quite evident that my *Cheilohadrus* is generically identical with and a synonym of *Prorachthes* Loew and that it may be considered as the previously unknown South African form of this Palaearctic genus which in the latter geographical region is represented by several species, but in South Africa by only one known and variable species *Prorachthes conspersipennis* (Hesse).

Prorachthes conspersipennis (Hesse)

(Hesse, p. 677, *Ann. S. Afr. Mus.*, xxxiv, 1938 (as *Cheilohadrus*).)

The description of this species was based on only 1 ♂ and 1 ♀. Since then the South African Museum has obtained another 14 ♂♂ and 1 ♀ from other localities. From all these specimens it is quite evident that the species is variable in the colour of the legs, the extent of the dark hairs on thorax above and the extent to which the dark areas or infusions (mottling) in the wings are developed. In view of this variability my variety *xerophilus* (p. 679, loc. cit.) hardly merits a separate and distinct name and should be considered as only representing a direction of variability which itself is not constant. To indicate the range of variability to which the species is subject the following supplementary notes should be added to render the original description of the species more complete:

Body more often darker; femora often darker, yellowish brown, brown to almost blackish brown. *Vestiture* with the hairs on thorax above, especially anteriorly, with more numerous and denser dark ones; hairs on genal part often with more numerous intermixed dark ones; meso- and metapleural tufts sometimes with more dark hairs intermixed. *Wings* with the infusions or mottling variable, sometimes even less extensive than is figured (p. 676, loc. cit.) the whitish spots or markings separating dark ones being more extensive, sometimes dark mottling more extensive, giving the wing a darker appearance and the whitish spots smaller in size and more linear. *Head* with the eyes in ♂ often in contact above for a slightly longer distance than length of ocellar tubercle; interocular space on vertex in ♀ a little more than 3 to nearly 4 times width of ocellar tubercle; proboscis sometimes longer than 1 mm.

Length of body: about $3\frac{1}{2}$ –6 mm.

Length of wing: about 4–6 mm.

Locality: Apart from the original type-localities Willowmore, Calvinia, and Aminuis in Bechuanaland, it has also been taken in the Little Karoo in the Uniondale Dist., at Paleisheuvel in the Western Cape and at Nuwerust and Bowesdorp in Namaqualand.

ADDITIONAL NOTES ON THE BOMBYLIINE GENUS *Othniomyia* AND THE GENOTYPE *Othniomyia tylopelta* HESSE

(Hesse, pp. 707–12 and text-figs. 209–12, *Ann. S. Afr. Mus.*, xxxiv, 1938.)

The acquisition of two other ♂♂ and four ♀♀ (the latter sex still undescribed) of this genus and species from Bushmanland (between Springbok and Pella) during October 1939 and at Wallekraal in Namaqualand in October 1950, has necessitated the following additional notes to the generic and specific descriptions of this Bombyliid:

Head with the ocellar tubercle in ♀ broader, more tumid; ocelli farther apart; eyes more broadly separated in ♀, about twice distance between posterior ocelli on vertex; face with rather long, stoutish, curved bristles on sides; terminal joint or style of antennal joint 3 sometimes subequal in length to joint; proboscis about 1–1.4 mm. long. *Vestiture* with the scutellar bristles on side rather stout and curved; bristles on thorax anteriorly rather stout, even more so in ♀; bristly hairs on abdomen above long posteriorly in ♀; whitish or white scales on abdomen above denser across hind margins of tergites, those on sides longer, cuneiform and denser; scaling on abdomen above in undenuded specimens with a distinct patch of black ones on each side apically of tergite 1 and to a fainter extent on each side apically of rest of tergites, and with an even more distinct patch of black ones on each side of midline above basally on tergites 2–6; scaling on legs greyish whitish, appearing dark in certain lights. *Wings* with the base not always very dark brownish, sometimes more yellowish or

yellowish brownish; squamae sometimes darker, more yellowish or brownish. *Legs* with stouter, more spine-like bristles below on femora in ♀.

The ♂♂ and ♀♀ (including the newly described ♀-allotype) in the South African Museum.

Length of body: about $5\frac{1}{2}$ –7 mm.

Length of wing: about $5\frac{1}{2}$ –7 mm.

Locality (additional): Namaqualand and Bushmanland (♀-allotype from Naib in Bushmanland between Springbok and Pella (Mus. Staff, Oct. 1939)).

NEW GENERA AND SPECIES

Subfam. CYRTOSIINAE

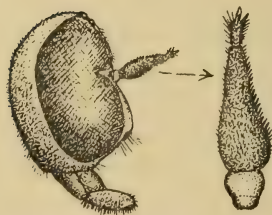
Doliopteryx n. gen.

(Footnotes pp. 39 and 968, *Ann. S. Afr. Mus.*, xxxiv, 1938 (Part I); p. 15, *Ann. S. Afr. Mus.*, xxxv, 1956 (Part II))

Through some oversight and owing to the peculiar and remarkable type of wing-venation of 5 specimens of *Diptera* sent to me by the British Museum, I did not include these insects in the first part of the revision. There is no doubt, however, that these interesting species belong to the *Cyrtosiinae* and to a new genus. The characters of this new genus are:

Body small and *Glabellula* or *Empidideicus*-like; thorax similarly convex and humped in appearance when viewed from the side; abdomen also broadish and squat in appearance. *Vestiture* in form of very short minute and somewhat sparse hairs or pile, that on abdomen above slightly denser and longer and arranged transversely across the tergites and more conspicuous, with a few sparse and even longer ones on each side in humeral region on side in front of wing-bases and on sides of scutellum; the fine pile on disc of thorax and on occipital and frontal region sometimes visible as a pruinescence; pleural parts bare. *Head* (text-fig. 283 of ♀) somewhat obliquely elongate, lower than thorax, its highest point on vertex, then rapidly declivous anteriorly, much like that of *Empidideicus*; occiput moderately well developed, rather broad and sloping down as in *Empidideicus*, without any central groove, rather broad on sides behind

eyes; eyes appearing rather shifted forwards, deeper than broad, somewhat oblique in position, their lower margins directed towards base of proboscis and not behind base as is usual in *Bombyliidae*, with a deeper and more conspicuous indentation along anterior inner margin opposite the antennae than in other *Cyrtosiinae*, broadly separated on head below, broadly and equally separated above on vertex in both sexes by a space at least as wide as posterior pair of ocelli; ocelli distinct, situated in a triangle, the anterior ocellus however more to the front than in *Empidideicus*, the



TEXT-FIG. 283. Side view of head and antenna of ♀ *Doliopteryx crocea* n. gen. et n. sp.

ocelli not apparently raised on a tubercle; frons distinctly converging anteriorly, the inner margins of eyes diverging towards vertex, the frons with a central depression which appears line-like from front ocellus to antennal insertions; antennae inserted in a slight depression (the front outline of head being indented there, in profile), quadriarticulate (text-fig. 283, to right); joint 1 very short and scarcely discernible; joint 2 distinctly longer and broader than 1; joint 3 the longest and broadest, broadest nearer base and tapering apically, ending apically in a fourth terminal element or joint, which is slender and sometimes distinctly longer than joints 1 and 2, itself ending in a stylar element, with both joints 3 and 4 covered with fine pubescence, that below on 3 more spinule-like; face relatively long, subequal in length to length of frontal part from vertex to antennal insertions, narrowish, the inner margins of eyes on sides of face sub-parallel, slightly convex; buccal part at right angles to face, with a few fine hairs on the inside on each side near apex of face; proboscis short and stoutish or slender and relatively long, the labella either broadish and provided with fine spinules below and adapted for licking or narrower and more horny; palps in form of a fine bristly hair on a slight prominence. *Wings* (text-fig. 284) very remarkable in that the veins and cells are not Bombyliid-like, being even more reduced and anomalous than in other *Cyrtosiinae*, with only one basal cell present which probably represents the first basal cell, the second one absent, with a small triangular cell just above the apical part of the single basal cell as in *Glabellula* and probably representing the marginal cell, with 6 longitudinal veins of which the second is remarkable in being only represented in apical part of wing and the sixth is transparent, with these 6 veins thus marking off 6 cells, the first in costal part probably representing a submarginal cell in the position of a marginal cell, the second is divided in the apical half into two parts by the abbreviated second vein, the fifth represents the anal cell and the sixth the axillary lobe; costal cell comparatively broad and distinct as in *Glabellula*; axillary lobe broad and the alula wanting; halteres rather well developed, with well-developed oval knobs. *Abdomen* with 7 visible segments, with the hypopygium of ♂♂ visible posteriorly, with the upper apical angle of broadish last sternite (text-fig. 285, right) in the one known ♂ produced on each side into an inwardly directed prong- or spine-like process somewhat like that of ♂ of *Empidideicus* and *Ceratolaemus* (subgenus of *Platypygus*); genital segment of ♀♀ slightly excavated above, somewhat tumid below and slightly bluntly produced on each side apically. *Legs* with very sparse and fine pubescence, denser and more distinct on tibiae where distinct spicules are not visible; apical spurs minute and inconspicuous; tarsi long and quite as long as tibiae, the basal joint of hind ones in known ♂ not modified; claws small but distinct, curved down apically; pulvilli well developed in both sexes. *Hypopygium* of known ♂ (text-fig. 285) minute, composed of two shell-like basal parts as in the other genera, ending apically in a pointed apical process instead of beaked apical joints, each provided on inner lower side with a minute hook; aedeagal structures, such as the aedeagus (probable position in dotted outline) and lateral

struts, were not discernible after preparation by boiling in dilute NaOH and these have either been destroyed by the NaOH or are composed of easily soluble structures; the basally directed flattened rod (Ro.) on each side is shown in position; the transverse structures shown at base of the apical processes probably represent part of the lateral rami, the aedeagal complex in the natural state probably just ventral to or associated with them; basal strut small, shown from ventral view in middle figure and from side (in dotted outline in the left-hand figure), with its dorsal process blunt. By comparing this figure with the figures of the ♂ hypopygium of *Platygyus* (*Ceratolaemus*), *Empidideicus* and *Onchopelma* in part I (pp. 972, 977, 983 and 984) the essential differences are obvious.

This genus should be placed near *Empidideicus* Beck. and *Glabellula* Bezz. Its peculiar wing-characters, however, distinguish it at once from all the known *Cyrtosiinae*. From *Empidideicus* it differs in the wing-characters described above, in having a deeper and more conspicuous indentation in inner margin of eyes opposite antennae, in having the anterior medial ocellus more forwards and a different type of hypopygium in the ♂. From the genus *Glabellula* Bezz., which it apparently resembles more closely, it differs in not having two basal cells in wings, in having the second vein only represented in apical part of wings and the front ocellus further forwards. Two species of this interesting genus are represented in the collections before me of which *Doliopteryx crocea* n. sp. is designated as the genotype. These two species may be distinguished as follows:

- (a) Body predominantly ochreous to pale orange yellowish; legs also predominantly pale yellowish to ochreous yellowish; only the occiput, eyes and antennal joint 3 and 4 blackish; apices of tarsi and the proboscis dark brownish or blackish brown; a central discal band on thorax in anterior half and sometimes an indefinite or indistinct spot on each side of it brownish and the apical process of last sternite in ♂ black; antennae with joint 4 shorter, not more than $\frac{1}{3}$ length of joint 3; proboscis very short and stumpy, much less than 1 mm. long, the labella broader and not horny; wings with the veins paler and more yellowish brownish; halteres entirely very pale yellowish whitish; fine pubescence on thorax above appearing dark brownish and very much sparser. . . . ♂ ♀ *crocea* n. sp. (p. 938)
- (b) Body, head and legs predominantly very dark blackish brown; thorax above and abdomen above more blackish; basal part of face, humeral angles, hind margins of the tergites, sides of the tergites broadly and the hind margins of the sternites bony yellowish or yellowish whitish; apices of the femora, to a certain extent the basal parts of hind tibiae and bases of hind tarsi yellowish brownish; antennae with joint 4 distinctly longer, longer than $\frac{1}{3}$ length of joint 3; proboscis very much longer, quite 1 mm. long, the labella narrower and both it and proboscis more shiny or horny; wings with the veins darker, more dark brownish; halteres more brownish; fine pubescence on thorax above distinctly denser, gleaming pale as slight silvery tomentum in certain lights. . . . ♀ *nigrescens* n. sp. (p. 940)

Doliopteryx crocea n. sp.

Body pale ochreous to pale orange yellowish; humeral angles, the scutellum and hind margins of tergites and to a great extent the venter tending to be even paler and more yellowish whitish; frons, antennal joints 1 and 2 and face also pale yellowish to ivory yellowish; a longitudinal central band on front half of thorax and on each side of it an indefinite, sometimes indistinct, spot or band,

brownish; posterior apical spine-like processes on last sternite in ♂ black; occiput, head behind and below, the eyes and antennal joints 3 and 4 black; proboscis blackish brown; legs very pale yellowish to pale ochreous yellowish, the apical parts of tarsi becoming brownish and the claws blackish. *Vestiture* with the fine pile on occiput and the fine hairs in upper part of buccal cavity sericeous, that on occiput appearing as slight silvery tomentum in certain lights; slightly longer, fine sparse hairs on each side of humerus sericeous yellowish; very fine, but relatively sparse, pubescence on disc of thorax and scutellum brownish to blackish brown; fine transverse hairs



TEXT-FIG. 284. Wing of *Doliopteryx crocea* n. gen. et n. sp.

on abdomen above across tergites gleaming pale sericeous yellowish in ♀♀, but those in basal half of abdomen in ♂ appearing darker in certain lights; fine pubescence on legs, especially the denser ones on tibiae, gleaming sericeous yellowish. *Wings* (text-fig. 284) not infuscated, but not clear hyaline, but with a slight subopacity due to very fine microscopical rugulose microstructure, iridescent, with the veins yellowish, becoming slightly tinted brownish towards apical part of wings, with the veins and cells as described for genus and as shown in figure; halteres very pale yellowish, the knobs almost whitish. *Head* (text-fig. 283) as described for genus; eyes separated above on vertex by a space which is only a little broader than distance between outer margins of two posterior ocelli in both sexes; frons with a central line-like groove; antennae (text-fig. 283) with joint 1 very minute and antennaria-like, scarcely discernible, with joint 3 a little more than 3 times as long as 4, with joint 4 ending in a stylar element and some bristly hairs on each side apically; proboscis very short and stumpy, even less than $\frac{1}{2}$ mm. long, the labella oval and broadish and provided with distinct spinules below; palps represented by a minute conical protuberance bearing a fine hair. *Abdomen* with the apical angle on each side of last sternite (text-fig. 285, right) in ♂ produced inwards into a flattened prong-like or spine-like process; genital segment in ♀♀ convex below, slightly excavate



TEXT-FIG. 285. Side and ventral views of hypopygium of ♂ *Doliopteryx crocea* n. gen. et n. sp. and side view of last sternite of same.

above and produced apically on each side into a slight prominence. *Legs* as described for genus. *Hypopygium* of ♂ (text-fig. 285).

From 1 ♂ and 3 ♀♀ (types in the British Museum).

Length of body: about $1\frac{1}{2}$ –2 mm.

Length of wing: about $1\frac{1}{2}$ – $1\frac{2}{3}$ mm.

Locality: South-West Africa: Great Namaqualand; Aus (Turner, Jan. 1930).

According to Mr. Turner both this and the following species were caught on the small white blossoms of a species of *Mesembryanthemum*.

Doliopteryx nigrescens n. sp.

Body and head predominantly black; pleurae more dark blackish brown; proboscis dark blackish brown; base of face, humeral angles, basal margin of tergite 1, the narrow hind margins of the other tergites, the entire sides of the tergites, the broadish hind margins of sternites and the squamal margins more whitish or bony yellowish; legs predominantly very dark brownish, the apices of the femora, the basal parts of hind tibiae, and the bases of the tarsi paler and more pale yellowish brownish, these parts on hind legs even more yellowish. *Vestiture* with the very fine pile on head, occiput and disc of thorax gleaming and appearing as slight silvery tomentum; that on thorax denser than in *crocea* and disposed more in form of pruinulent bands; that on scutellum, especially on sides, also paler and more sericeous; the hairs transversely across tergites gleaming whitish sericeous, and the fine pubescence on legs also gleaming sericeous in certain lights. *Wings* as in *crocea*, but the veins distinctly darker and more brownish, with the greater part of squamae also more brownish; halteres dirty yellowish, their knobs tinted brownish. *Head* with the frons slightly narrower than in *crocea*; antennae with joint 4 distinctly longer and more slender than in *crocea*, this joint also longer than joints 1 and 2; proboscis very much longer, quite 1 mm. long, slightly curved downwards and somewhat shiny and horny, the labral part stoutish and shining, the labella narrower and more horny. *Legs* apparently slightly more slender than in *crocea*.

From a ♀ in the British Museum.

Length of body: about $1\frac{1}{2}$ mm.

Length of wing: about $1\frac{1}{4}$ mm.

Locality: South-West Africa: Great Namaqualand; Aus (Turner, Dec. 1929).

Subfam. GERONINAE

Note on Séguy's *Geron semifuscus* (p. 15, *Mem. Mus. Zool. Univ. Coimbra*, (1), No. 67, figs. 2 and 3, 1933.) (See also footnote on p. 917, Part I.)

While Part I of my Revision was in the press I became aware of the fact that Séguy had described a species *Geron semifuscus* from Natal, based on material collected by M. P. Lesne.

From Séguy's short description and two figures it is quite evident that his species is not a true *Geron* s. str. as was defined by me, but is probably referable to my *Amictogeron* (p. 918, Part I). Judging from his description and figure of the head there is a suspicion that the specimen (or specimens) described by him is not a ♂, but a ♀. The eyes in the ♂♂ of both *Geron* and *Amictogeron* are always in actual contact above and never separated. In ♀♀ on the other hand they are separated by the ocellar tubercle as stated by Séguy for his specimen. From his figure of the head it is equally apparent that the species cannot be referred to *Pseudoamictus* where the eyes are separated or narrowly separated in ♂♂, for in *Pseudoamictus* the head is distinctly more flattened or depressed and the first antennal joints are longer and stouter. Such characters as longish first antennal joints which are covered with dark or black hairs, infuscated wings in which the second submarginal cell is long and narrowish and the apical cross vein of discoidal cell is markedly S-curved, and halteres with darkened knobs, which are mentioned by Séguy, suggest its inclusion in *Amictogeron*. From his description it is however impossible to state whether anyone of my species, such as *phaeopteris*, *marshalli* and *lasiocornis*, which all have very darkly infuscated or semi-infuscated wings, is identical with *semifuscus*. From the description it however appears that *semifuscus* is nearer to my *phaeopteris*. From the latter it however appears to differ in having more yellowish brown on the abdomen and more yellowish or brownish on the scutellum. As *phaeopteris* is however variable in size and coloration there is a possibility that it may prove to be identical with *semifuscus* Séguy, in which case Séguy's name has priority.

XENOPROSOPINAE n. subfam.

A single ♀-specimen in the collections of the South African Museum is so remarkable and so aberrant in the structure of its head and especially the facial region and its mouthparts that it cannot be placed in any Dipterous family, but as its wing-venation, its antennae and certain other characters are without doubt those of a Bombyliid, it is referred to this latter family. As its peculiar mouthparts and its facial region are so remarkably aberrant and different from those of any known Bombyliid-genus it cannot be satisfactorily placed in any of the known subfamilies or be compared with any of the known genera. It is here described as a new genus *Xenoprosopa* which at the same time is the representative of a new subfamily *Xenoprosopinae* which is characterized as follows:

Head with the buccal cavity and mouthparts (proboscis and palps) reduced and much transformed or modified; facial part depressed; first antennal joint with a conspicuous lobe-like process or extension below; frons broad, equally broad throughout; ocellar tubercle broad; hind margin of eyes only feebly sinuous, not emarginate, not bisected; occiput short, not deeply excavate behind, but with a slight central, broadish depression, bounded on each side by a slight tumid prominence. *Scutellum* relatively small. *Wings* narrowish, shortish, without an alula. *Legs* short; femora without spines; spicules on

tibiae and tarsi very short. *Vestiture* on body in form of fine hairs and scaling, without any stiffer bristly hairs or macrochaetal bristles.

Represented by the new genus *Xenoprosopa*.

Xenoprosopa n. gen.

This remarkable genus is characterized as follows:

Body somewhat elongate. *Head* (text-fig. 286) broader than thorax, much broader than long; occiput relatively short, only slightly concave behind, but with a distinct, broad and shallow, central, groove-like depression, extending down from behind ocellar tubercle and bounded on each side just behind dorso-posterior angles of eyes by a slight, but distinct, tumid prominence (or lobe) (cf. text-fig. 286, middle figure below); hind margin of eyes only slightly sinuous, not deeply indented and without a bisecting line; ocellar tubercle broad, only slightly raised, its postero-lateral ocellus on each side well developed, slightly elongate, much larger than small anterior and medial one; frons markedly broad, equally broad throughout, slightly and broadly depressed in front of ocellar tubercle, somewhat transversely prominent a little behind antennae; antennae (text-fig. 286) somewhat close together and with fine hairs on all the joints; joint 1 with a large, prominent and conspicuous, fairly densely haired, inflated or lobe-like extension below; joint 2 transverse, its outer apical angle somewhat sharply pointed; joint 3 stoutish, broadened basally, club-shaped, ending apically in a small or short terminal joint, itself ending in a slender stylet; facial part in front (or below) antennae slightly depressed or excavate, showing and lodging the following mouthparts and structures (cf. text-fig. 286, left and right below): a transverse groove demarcating anterior margin of actual face, a central raised boss-like part, separated from eyes and genal part by a deep sulcation or groove (genal groove) and ending medially and anteriorly in a downwardly projecting, somewhat triangular and bluntly pointed process or spine (? anterior or reduced rim of modified buccal cavity) which is bounded on each side and below or behind it by an oval, inflated, hair-covered lobe (? modified palps), these mouthparts in turn being bounded behind by a downwardly projecting lip-like process or extension (? posterior rim of modified buccal cavity). *Thorax* shortish, subquadrate, but longer than broad, slightly convex anteriorly, appearing slightly humped; scutellum relatively smaller than in other Bombyliid genera, narrowish, rather tumid, leaving on its sides much of postalar calli exposed. *Wings* (text-fig. 286) relatively short and narrowish; membrane wrinkled; basal comb wanting; alula wanting; second vein originating some distance before middle cross vein; only two submarginal cells present; discoidal cell relatively short; four posterior cells present, of which the first and third are narrowed apically, the third being very characteristically triangular in shape; anal cell elongate, narrowish; squamae triangular, sparsely hairy along hind border; knobs of halteres rather large. *Abdomen* elongate, with 7 visible segments in ♀ and in this sex with a

posterior genital tuft. *Legs* short, relatively feebly developed, without any spines on femora, only with fine and short hairs, the middle ones however with longish fine ones on outer face; tibiae with the front and middle ones scarcely or only a little shorter than femora, the hind ones much shorter, covered with numerous very short spicules, in more than four rows; apical spurs of tibiae short, relatively feebly developed; tarsi shortish, shorter than tibiae, slightly compressed in apical part, especially hind ones, with relatively feebly developed, short spicules, the front tarsi not modified or different from the others; pulvilli present. *Vestiture* on body relatively poorly developed, composed of fine, shortish hairs and fine hair-like scales, the former densest on head and the latter on abdomen, without any stiffer bristly hairs or bristles on any part of body; hairs on abdomen, even on sides, fine and very short, absent on venter; pteropleuron, hypopleuron and greater part of metapleuron bare; plumula entirely absent; scaling on legs fine.

In view of its various anomalous characters this aberrant genus and the new subfamily to which it is referred, cannot be satisfactorily compared with either the series of subfamilies and genera which have already been dealt with in Division I (Part I, *Ann. S. Afr. Mus.*, xxxiv, 1938) or with those described under Division II in the two parts of this volume.

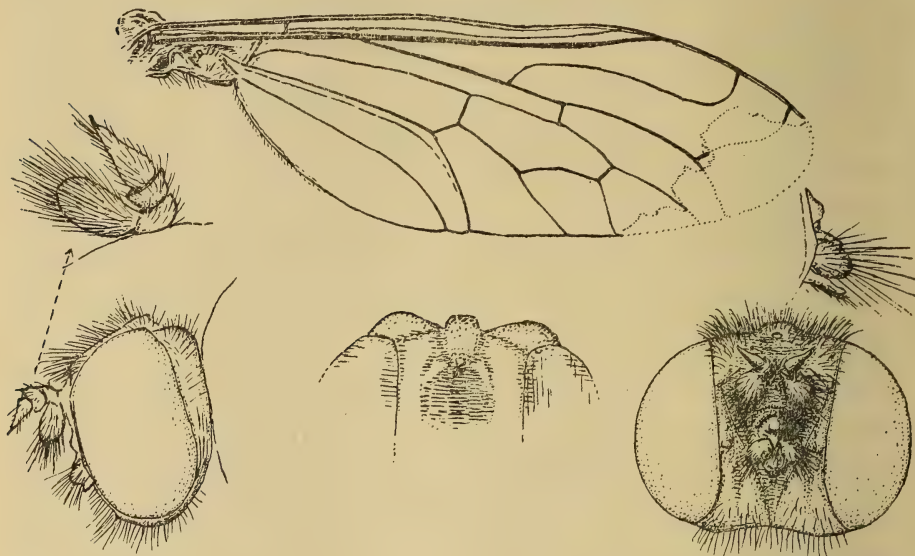
The absence of a conspicuous and deep excavation in the occipital region, the non-emarginate hind margin of eyes, absence of a plumula and certain venational characters in its wings however point to its inclusion among those forms referred to my Division I, notwithstanding the incipient or transitional bilobate condition of the upper part of its occiput and the long common base of the second and third main veins in its wings. To facilitate its identification it has however been included in both sections (Divisions I and II) of the general key to all the known genera of South African Bombyliidae given in the first part of this volume.

The only genus to which it appears to have some distant relationship, as far as its frontal and wing-characters are concerned, is the peculiar and aberrant South African genus *Oniromyia* which Bezzi placed in the *Cythereinae* and to which Palaearctic subfamily I also provisionally referred that genus in Part I of my Revision (p. 986, *Ann. S. Afr. Mus.*, xxxiv, 1938).

From *Oniromyia* it may however at once be distinguished by its aberrant facial region, its remarkable and entirely different mouthparts, much larger and more conspicuous lobe-like or bladder-like extension on first antennal joint below, presence of a distinct, tumid or lobe-like prominence on each side of occiput above, presence of a distinct, broadish, central, groove-like depression down behind ocellar tubercle, less pedunculate and slightly broader and relatively longer wings, much longer common base of second and third veins, shorter discoidal cell, very much shorter and less dense hairs on head, thorax and abdomen, entire absence of stiffer bristly hairs or bristles on any part of body, and the feebler and shorter legs which have no spines on femora and only very short, feebly developed spicules on tibiae and tarsi.

The modified, transformed and reduced mouthparts, shortish legs, absence of spines on femora, the marked reduction in size of the spicules on tibiae and tarsi, and the relatively poor development of hairs on the body, as well as the entire absence of bristles, also distinguish it as a representative of a new subfamily from the *Cythereinae* s. str.

The genotype and only known species is *Xenoprosopa paradoxa* n. sp.



TEXT-FIG. 286. Wing and head structures of ♀ *Xenoprosopa paradoxa* n. gen. et n. sp.

Top: Right wing (dotted part shows part missing). Lower figures: Side view of head and enlarged antenna on left; middle: dorsal view of basal part of head to show occipital prominences and ocellar tubercle; right: front view of head and above it enlarged mouth parts.

Xenoprosopa paradoxa n. sp.

Body, including eyes and scutellum, mainly black; integument of head, thorax above, pleurae and to a lesser extent that of abdomen somewhat shiny; genal part with a slight whitish or silvery pruinescence; lobe-like extensions of first antennal joints, postalar calli and extreme basal angles of scutellum, infusion on pteropleuron and middle parts of pleurae, to a certain extent anterior faces of coxae to a variable extent, and greater part of venter reddish brown; humeral part, broad and rather conspicuous hind margins of tergites 1-6 and almost entire 7 and broadish hind margins of all the sternites paler, more yellowish reddish or orange reddish; legs yellowish, only upper apical part of last tarsal joint, apices of claws and anterior lower or lower apical parts of trochanters darkened. *Vestiture* with the fine and dense hairs on frons, occiput,

antennae and their lobes, lobe-like palps, and head below sericeous white, those on occipital lobes however with a slightly more sericeous yellowish tint; shortish scales on sides of frons whitish; somewhat sparse scaling behind eyes more greyish or dirty whitish; fine hairs on thorax above, especially anteriorly and laterally, on postalar calli, scutellum, pleurae, coxae, more densely on sides of tergite 1, the much shorter ones on rest of abdomen and those on middle femora behind also gleaming sericeous white like those on head, but with those on disc of thorax and discally on scutellum distinctly more yellowish; fine, sparse scaling on thorax above, denser along middle basally and along middle of scutellum, mainly whitish; scaling on abdomen above much denser and finer, those across broadish yellowish hind margins of tergites white, denser and longer on sides, and those on rest of tergal surfaces darker or even blackish on the dark parts of tergites; those on last tergite and broad hind margin of 6 gleaming slightly more yellowish; fine and dense scaling on venter mainly greyish white to feebly greyish yellowish, but more white across hind margins of sternites and also with some darkish ones on darker parts; genital tuft of ♀ yellowish; fine scaling and fine hairs on legs mainly white, the small spicules on tibiae and tarsi however yellowish. *Wings* (apical part in this unique specimen somewhat damaged) as shown in text-fig. 286, greyish hyaline, only feebly iridescent due to wrinkled membrane; base and costal cell slightly more yellowish whitish; costal vein, false vein, basal half of first vein pale yellowish, the rest more greyish or slightly darker; second vein originating at a point on third vein before middle cross vein about 3 or slightly less than 3 times length of middle cross vein; middle cross vein itself distinctly beyond middle of discoidal cell; the latter shorter than first posterior cell; first posterior cell apparently narrowly open apically (apical part of wings in specimen however damaged); axillary lobe broader than anal cell; squamae yellowish, the straight hind border pale yellowish white; halteres yellowish, with pale ivory yellowish or yellowish white knobs. *Head* (text-figs. 286, left and right below) with the interocular space on vertex in ♀ a little more than 3 times distance between outer margins of posterior ocelli; frontal depression broad and distinct; inflated lobe-like extension of antennal joint 1 distinctly longer than joints 1 and 2 combined and also longer than joint 3; antennal joint 3 club-shaped, slightly more rapidly broadened to bulb-like base on inner lower part, its more slender part however rather thickish and a little longer than bulb-like base, ending apically in a small bead-like terminal joint. *Legs* with the claws slightly laterally compressed; pulvilli small, narrow, almost spine-like, short and just about reaching middle of claws.

From a single ♀-specimen in the South African Museum.

Length of body: about 10 mm.

Length of wing: about 7 mm.

Locality: Bushmanland: Pofadder (Theronville) (Mus. Staff, Oct. 1939).

Easily recognized by the whitish hair, conspicuously yellowish-ringed abdomen and yellowish legs. When resting on the sand it has some resemblance to an Asilid or a Therevid.

MORE SPECIES *incertae sedis* OF DIVISION I

Since the publication of Part I and the alphabetical list of unidentified species of *Bombylius* described from Southern Africa by Bezzi, Macquart and Walker and given on pp. 298 and 290, Dr. S. F. Paramonow (p. 515, *Ann. Mag. Nat. Hist.* (ser. 12), iii, 1950) has drawn attention to the fact that quite a number of species of Bombyliidae described by Macquart in 1855 (*Dipt. Exot., Suppl. v*) and listed in Kertész's Catalogue as coming from Oceania, are in fact African or South African species of which the locality-label 'Cap des Aiguilles' has been wrongly interpreted as Oceanian by Macquart, but in all probability refers to Cape Agulhas and its environment or to the Southern Cape.

As these species of *Bombylius* have thus not been noted or mentioned by me at the time, a list of them and comments upon their possible identity are given below. Comments on the species of *Anthrax* (or *Argyramoeba*) and *Exoprosopa* also described from 'Cap des Aiguilles' have been given under these genera respectively.

It must however be emphasized that the descriptions of Macquart and his illustrations of wings are so unsatisfactory that in most cases it is impossible to recognize his species or to establish their priority or synonymy from these descriptions alone.

Bombylius albifacies Macq. (p. 80, loc. cit.). This species with an open first posterior cell does not belong to *Bombylius* and is probably referable either to my genus *Doliogethes* (*Dischistus* olim, in part) or more likely to *Gonarthus*. It is however unrecognizable from the description.

Bombylius bicoloricornis Macq. (p. 79 and tab. 4, fig. 4, loc. cit.). As there are quite a number of yellow-haired and yellowish-legged species of *Bombylius* with the middle cross vein in wings beyond the middle of discoidal cell, it is impossible to recognize this species.

Bombylius fulviceps Macq. (p. 81 and tab. 4, fig. 8, loc. cit.). Also has an open first posterior cell and does not belong to *Bombylius*, but either to *Doliogethes* or to *Gonarthus* and cannot be recognized from the description.

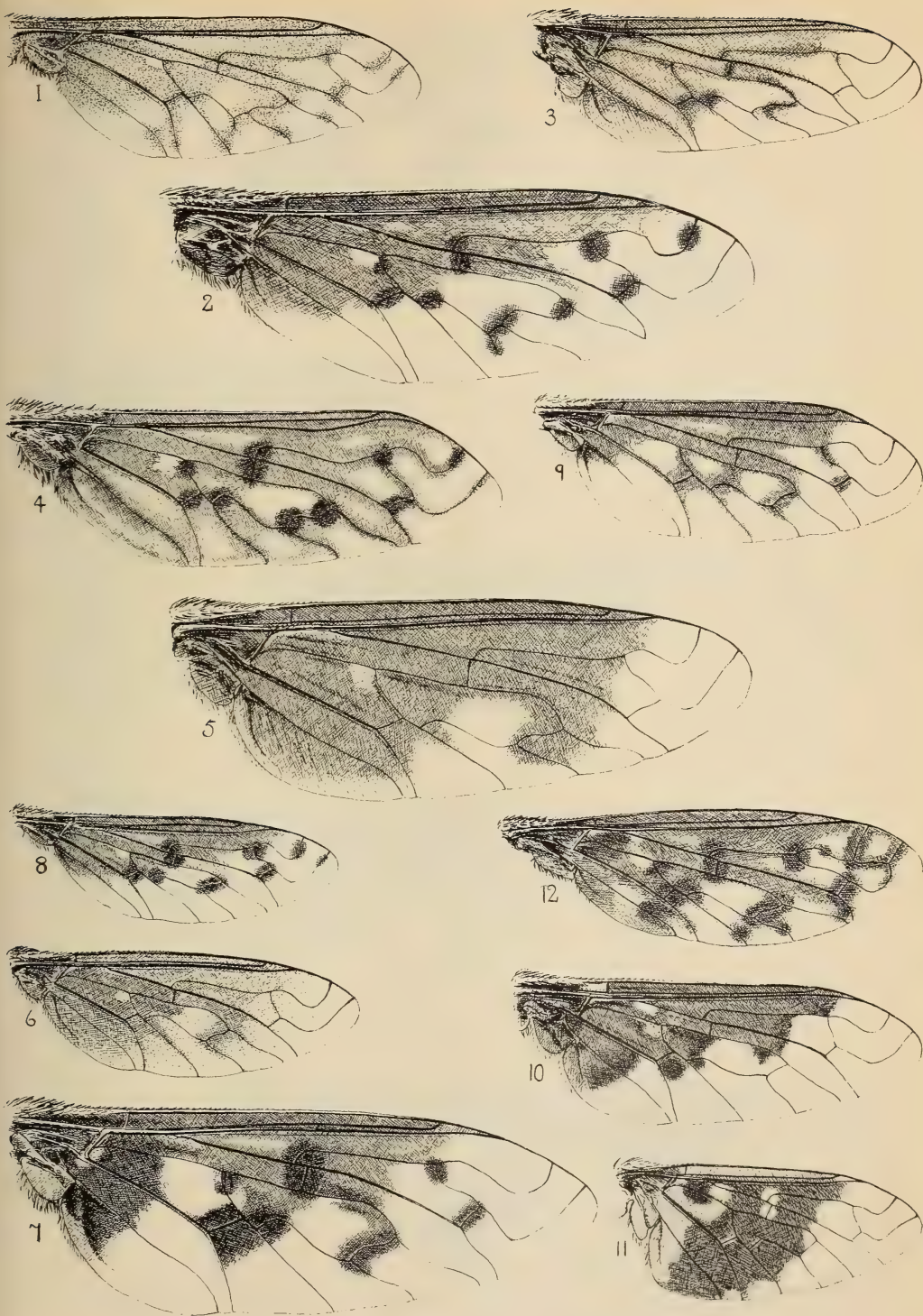
Bombylius guttatipennis Macq. (p. 79 and tab. 4, fig. 5, loc. cit.). This species obviously belongs to the *capensis*, *megaspilus* and *braunsi*-section. The description is more or less applicable to any of these three species, but the figure of the wing, though very bad and unsatisfactory, agrees more with the wings of specimens determined by Bezzi as *capensis* Linn., a species which appears to be variable in size and in the size and confluence of the spots in the wings. It is however chiefly characterized and distinguished by the small spots at ends of posterior veins which in the case of *megaspilus*, *braunsi* and related species are large and conspicuous. It is thus quite possible that Macquart's *guttatipennis* may prove to be only a form of the variable *capensis* Linn.

Bombylius minimus Macq. (p. 81 and tab. 4, fig. 9, loc. cit.). The description of this species is very short and inadequate, but the few characters given are also applicable to my *minusculus* in Part I (p. 266, *Ann. S. Afr. Mus.*, xxxiv, 1938),

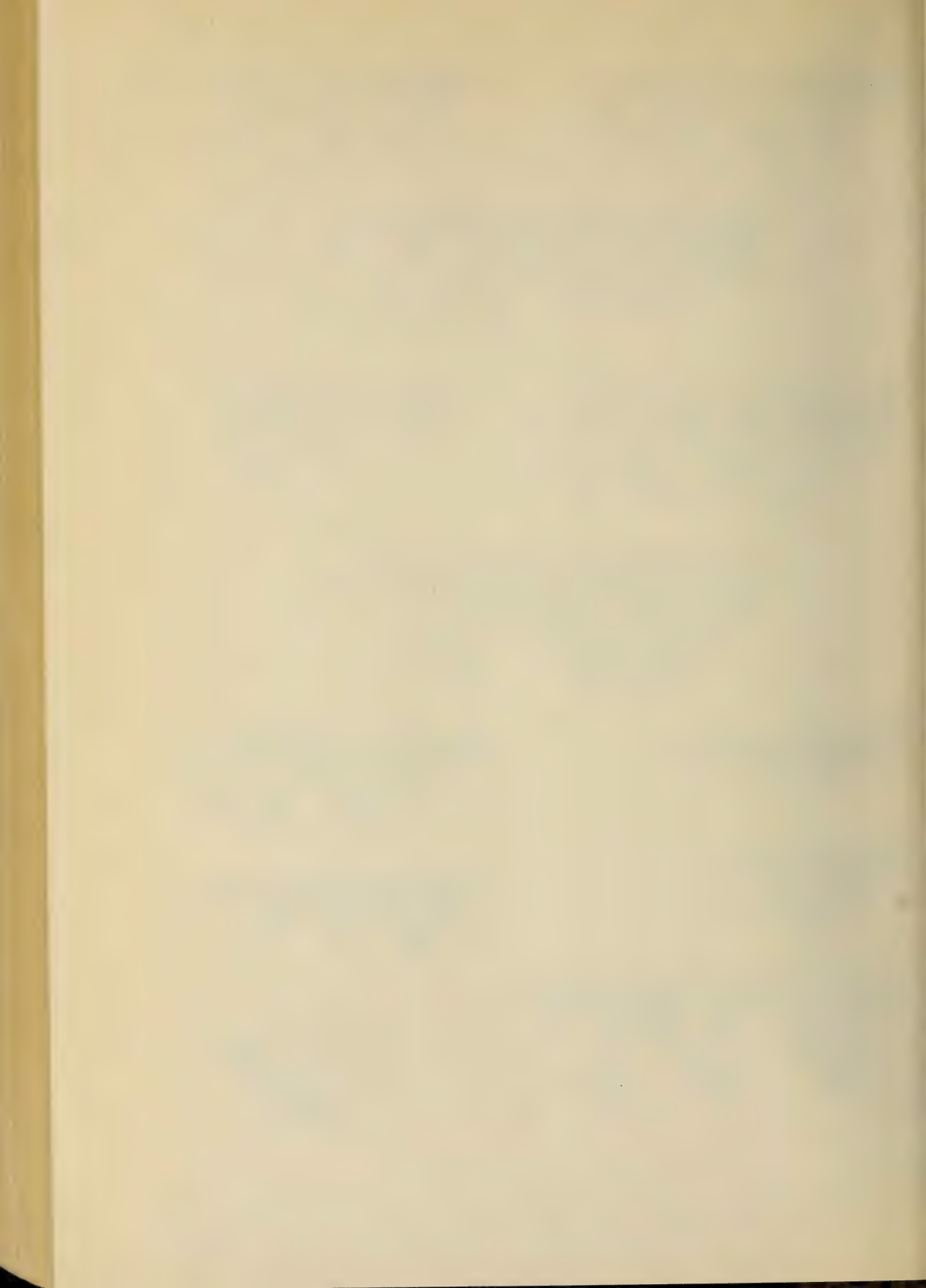
one of the smallest species in South Africa. The length ($\frac{1}{3}$ line) given by Macquart is however obviously wrong. It is quite possible that my species may prove to be a synonym of *minimus*.

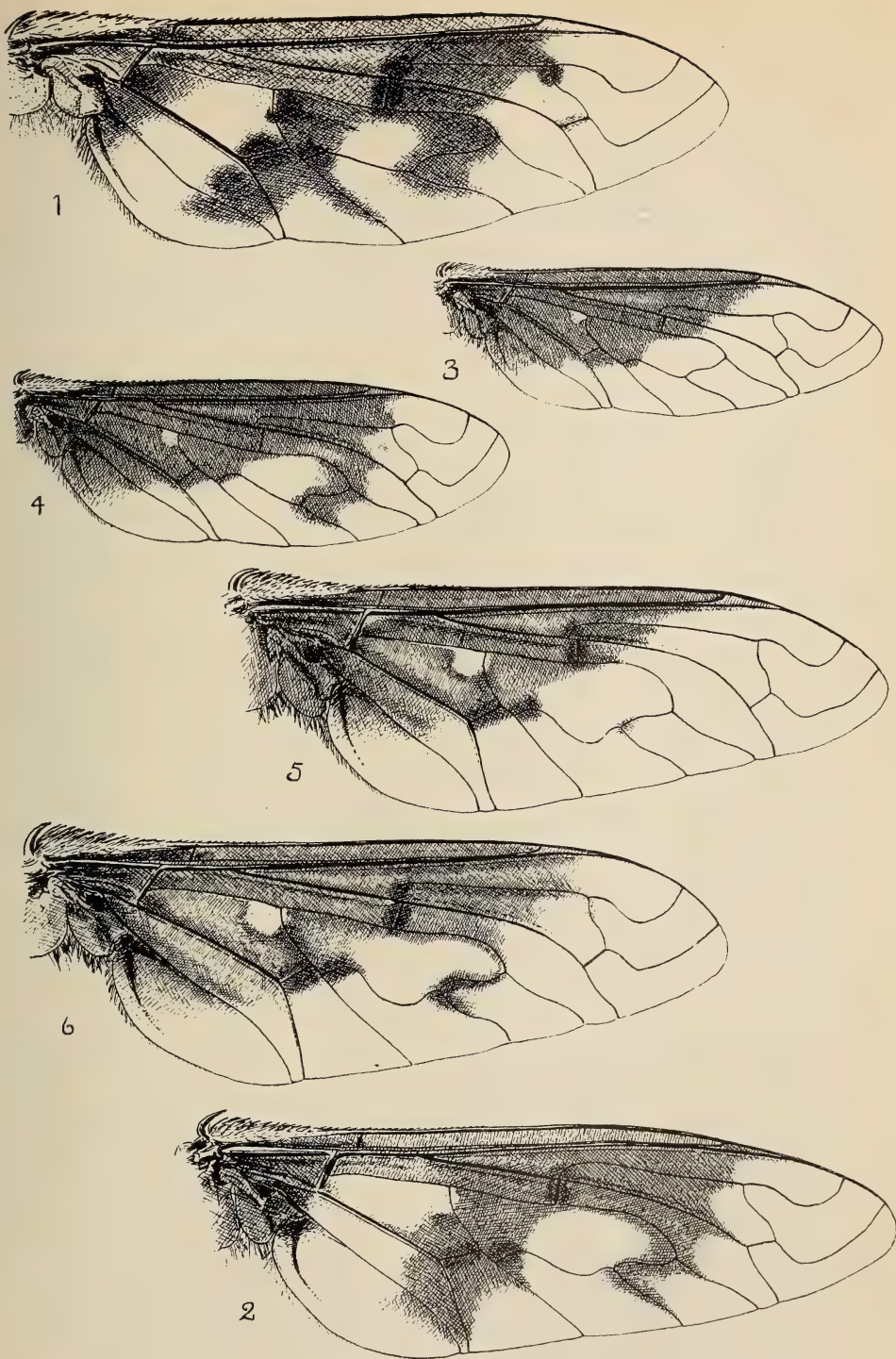
Bombylius niveus Macq. (p. 78 and tab. 4, fig. 3, loc. cit., nec Macquart, p. 102, *Dipt. Exot.*, ii, 1840). The description of this white-haired species is to a certain extent also applicable to forms of *molitor* Wied., but as there are a few other very similar white-haired species in South Africa and as no other distinguishing characters are given by Macquart, his species cannot be identified from the description. The spots depicted in the figure of the wing and the position of the middle cross vein on the discoidal cell do not entirely agree with those of *molitor*. The position of the middle cross vein rather suggests some species of *Anastoechus* or *Systoechus*. This *niveus* of Macquart is not the same species so named in 1840. The latter is probably a species of *Gonarthus* (see Part I, p. 633).

Bombylius rufilabris Macq. (p. 80 and tab. 4, fig. 6, loc. cit.). As in the case of *albifacies* and *fulviceps* the open first posterior cell excludes this species from *Bombylius* and suggests its inclusion in *Doliogethes* or *Gonarthus*. It too is not recognizable from the description.

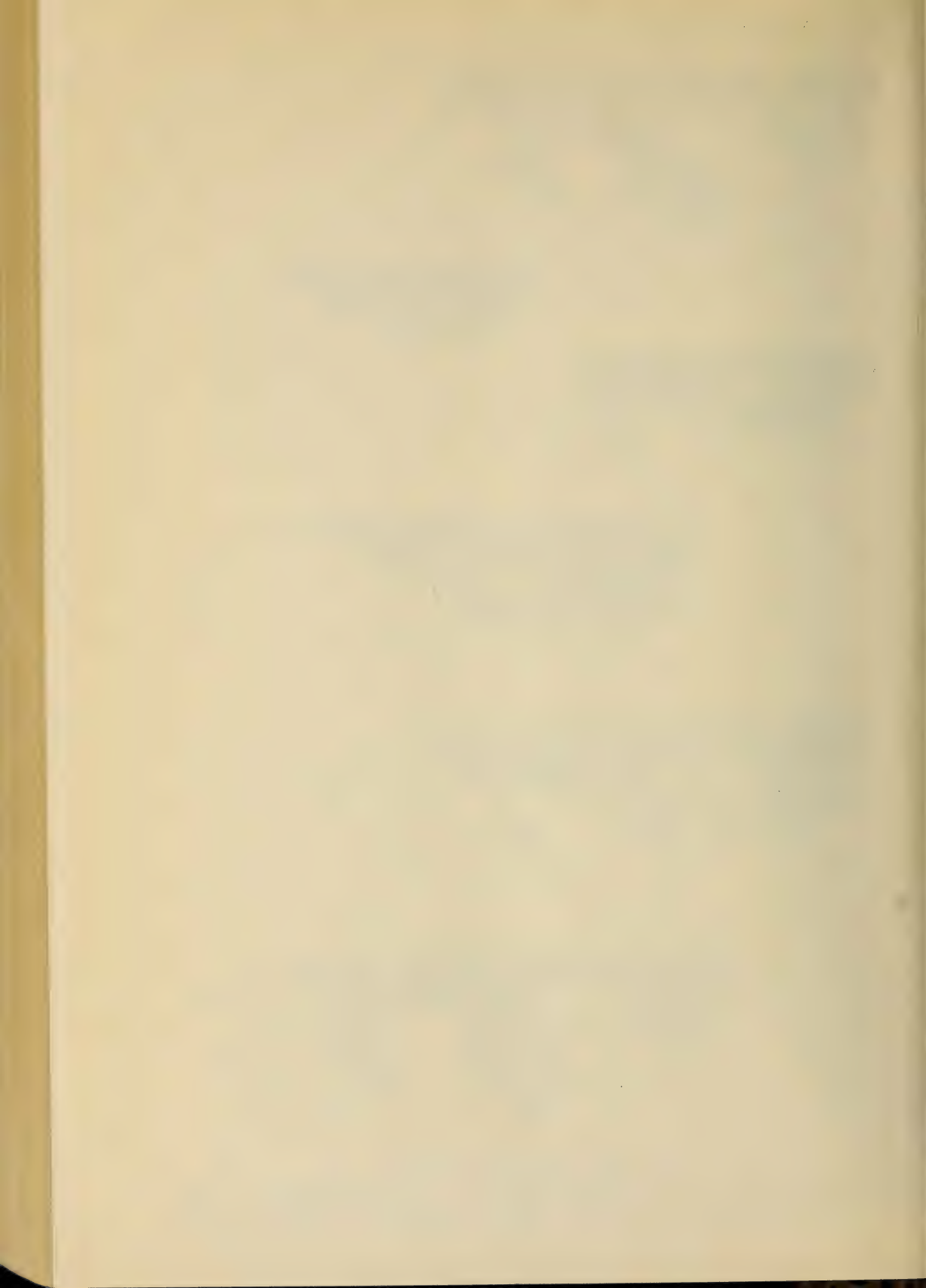
Wings of South African species of *Exoprosopa*

- 1—*Exoprosopa hamula* n. sp. (♀). 2—*Exoprosopa aridicola* n. sp. (♀). 3—*Exoprosopa acrodiscoides* Bezz. (♀).
 4—*Exoprosopa guillarmodi* n. sp. (♂). 5—*Exoprosopa hamata* (Macq.) (♀). 6—*Exoprosopa nebulosa* n. sp. (♀).
 7—*Exoprosopa inaequalipes* Lw. (♂) (infuscation at base of fourth posterior cell sometimes extends down fifth vein). 8—*Exoprosopa loxospila* n. sp. (♀). 9—*Exoprosopa trilocolina* n. sp. (♂). 10—*Exoprosopa argentifrons* Macq. (♂).
 11—*Exoprosopa formosula* Bezz. (♂). 12—*Exoprosopa* (*Heteralonia*) *kaokoënsis* n. sp. (♂).



Wings of South African species of *Exoprosopa*

1—*Exoprosopa tripartita* n. sp. (♀). 2—*Exoprosopa mozambica* n. sp. (♀). 3—*Exoprosopa sigmoidea* (♂ of a form of it). 4—*Exoprosopa sigmoidea* Bezz. (♀ of a form of it). 5—*Exoprosopa heros* (Wied.) (♂ of a form of it) (= *dux* Bezzi, nec. Wiedemann). 6—*Exoprosopa heros* (Wied.) (♀ of a form of it).



GENERAL INDEX

TO

Part I (vol. xxxiv, 1938) and Parts II and III in this volume (vol. xxxv)

Parts are indicated by Roman numerals, pages by Arabic numerals, and pages where the main or chief descriptions are given in heavy type. Genera, Subgenera, Subfamilies and Families (excepting those in brackets or those indicating groups or sections) are in capitals, and synonyms or generic or specific names no longer in use are in italics.

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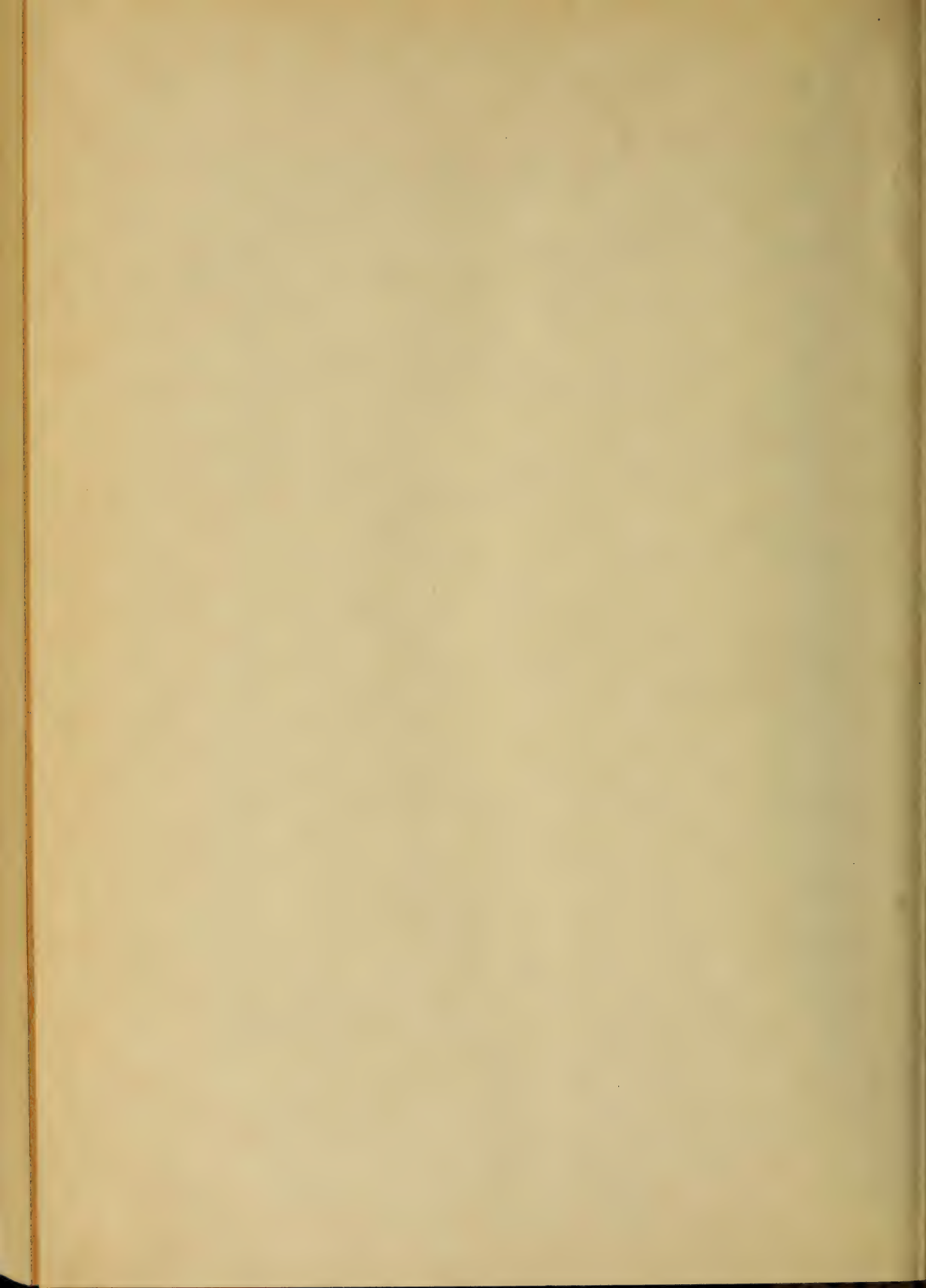
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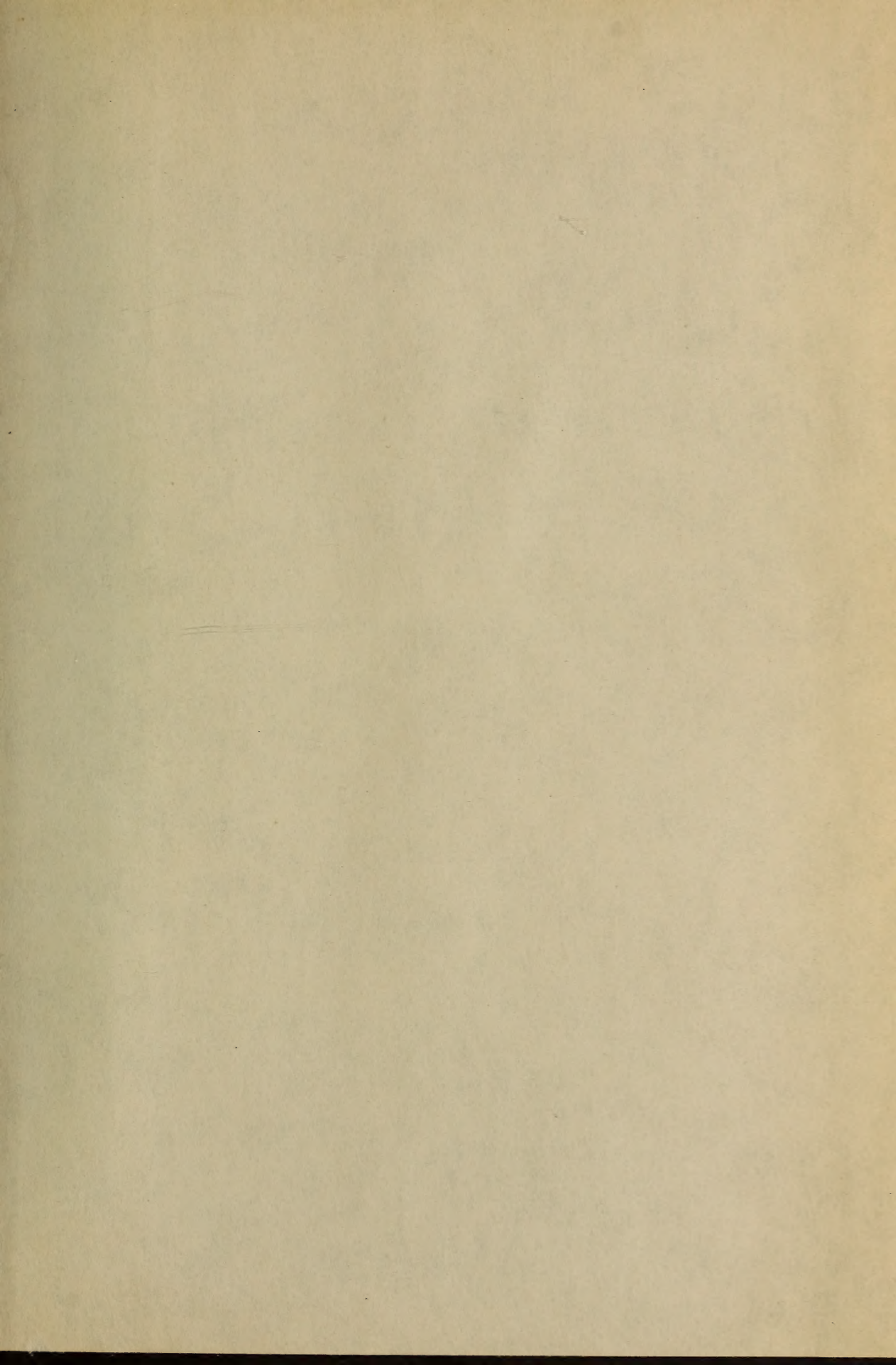
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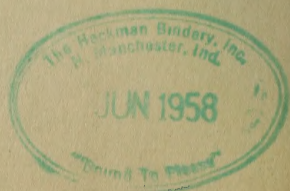
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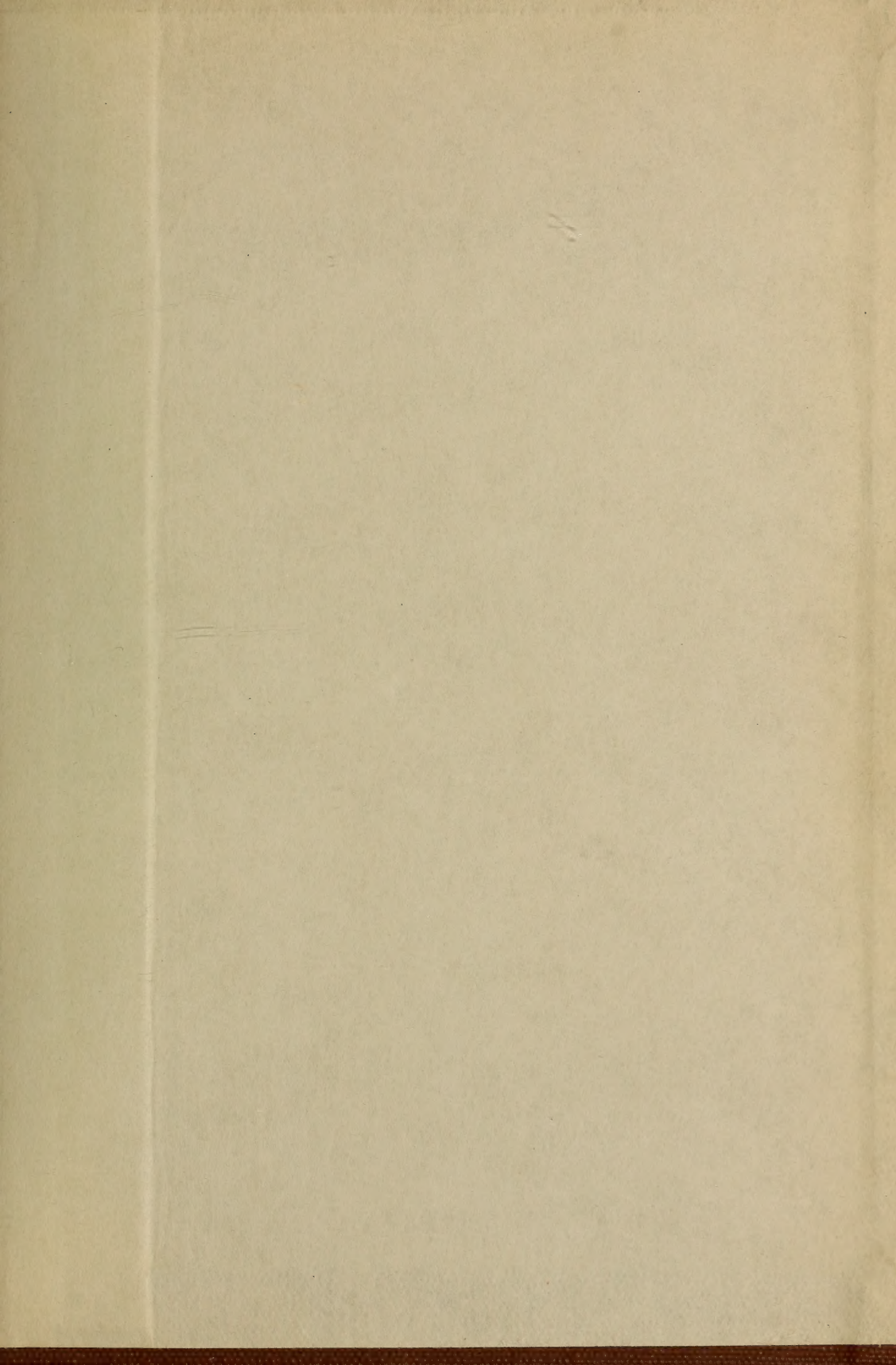
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